ENCLOSURE

INITIAL SALP REPORT

U.S. NUCLEAR REGULATORY COMMISSION

REGION I

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

REPORT NOS. 50-220/91-99 AND 50-410/91-99

NIAGARA MOHAWK POWER CORPORATION

NINE MILE POINT UNITS 1 AND 2

ASSESSMENT PERIOD: APRIL 1, 1991 - MAY 23, 1992

BOARD MEETING DATE: JULY 9, 1992

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I. INTRODUCTION

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

An NRC SALP Board, composed of the staff members listed below, met on July 9, 1992, to assess the performance of the Niagara Mohawk Power Corporation (NMPC) at Nine Mile Point Units 1 and 2. This assessment was based on the collection of performance observations and data for the period of April 1, 1991, to May 23, 1992, and was conducted in accordance with the guidance in NRC Manual Chapter 0516, "Systematic Assessment of Licensee Performance." A summary of the guidance and evaluation criteria is provided in Section IV.E in the Supporting Data of this report.

The SALP Board was composed of:

Chairman:

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

Members:

W. Lanning, Deputy Director, Division of Reactor Safety (DRS)
J. Durr, Acting Deputy Director, Division of Radiation Safety and Safeguards (DRSS)
R. Capra, Director; Project Directorate I-1, Office of Nuclear Reactor Regulation (NRR)
L. Nicholson, Chief, Reactor Projects Section No. 1A, DRP
D. Brinkman, Senior Project Manager, NMP Unit 1, NRR*
J. Menning, Project Manager, NMP Unit 2, NRR*
W. Schmidt, Senior Resident Inspector, DRP

* Each of the Project Managers supplied a vote in the determination of the Category Rating for their respective units in the Plant Operations functional area. In the other functional areas the Project Managers provided one vote which represented their consensus on the Category Rating.

Others in Attendance:

C. Cowgill, Chief, Projects Branch No. 1, DRP
R. Laura, Resident Inspector
W. Mattingly, Resident Inspector
C. Beardslee, Reactor Inspector, Intern

II. SUMMARY OF RESULTS

II.A Overview

During this period, performance was generally good and both plants continued to be operated safely. However, some instances of inattention-to-detail and failure to follow procedures caused problems. These instances indicated that NMPC had not been fully effective at correcting these longstanding performance issues. While the number of reactor scrams caused by personnel errors was very low, the total number of scrams caused by equipment failures, particularly at Unit 1, was high. Good operator response to the events ensured the continued safe operation of the plants.

Overall the functional area category ratings were consistent with the last SALP period. However, a declining performance trend, since the last period, was noted in the Maintenance/Surveillance and Emergency Preparedness functional areas.

In the Operations area, Unit 1 staff demonstrated good performance and exhibited good safety perspective in routine operations and in responding to challenges caused by equipment failures. However, operating shifts were involved in the isolation of the unit from its ultimate heat sink and in the inadvertent bypassing of a reactor protection system function. Increased management attention to these concerns was observed late in the assessment period. The Unit 2 operations staff demonstrated very good performance and competently maintained the plant in a safe condition. Some minor incidents of inattention-to-details occurred, but management continued strong, effective oversight of activities, and implemented good corrective action.

In the Radiological Controls area, an effective ALARA program continued to be maintained at Unit 1, with significant improvements made in this area at Unit 2. Some weaknesses were noted in the radiological controls program at both units. The radwaste transportation and radiological environmental monitoring program for both units continue to be strong. The liquid and gaseous effluent control programs continue to be very effective. Management attention and commitment to safety were noted in this area.

In the Maintenance and Surveillance area, the Unit 1 staff demonstrated generally good performance. However, this overall performance was overshadowed by a breakdown in the implementation of the maintenance work control program which led to the isolation of the unit from its ultimate heat sink. Unit 1 staff effectively implemented the surveillance test program. The Unit 2 maintenance staff also showed good performance and demonstrated proper safety perspective. There were however, a few instances of poor work practices and inattention-to-detail, which included dropping two new fuel bundles. The Unit 2 staff appropriately implemented the surveillance program, contributing to the safe operation of the plant. Overall, the maintenance and surveillance programs were effectively implemented. However, a decline in performance at both units was observed due to an increased number of equipment failures and significant personnel errors.

Performance in the Emergency Preparedness area continues to be excellent. The implementation of the Site Emergency Plan (SEP) was observed during drills and actual events and found to be excellent. NMPC continues to maintain an effective drill/exercise program and well qualified station and corporate management. The emergency response facilities, equipment, and supplies were very well maintained. However, a declining trend was noted since management involvement was not always evident in the timely resolution of several issues which have either been recurring or open for long periods of time.

The Security program continued to be a strength; this consistent performance over previous SALP periods was recognized by the board. The program was performance-based and was effectively implemented. The training program was well developed and administered. Significant upgrades completed demonstrated management commitment to maintaining a state of the art security program.

In the Engineering/Technical Support area, the engineering staff continued the support of safe plant operations with high quality work. The engineering department took effective actions to improve the oversight, quality, and timeliness of its products. Some instances of inadequate engineering involvement during unplanned events, such as the inadvertent isolation of the ultimate heat sink at Unit 1, were noted. There were also some instances of inadequate control over temporary modifications and inconsistences in the quality of submittals to the NRC. The training program was improving and seemed comprehensive. Increased management involvement, controls, and initiatives to assure quality of engineering products were noted.

In the Safety Assessment/Quality Verification area, good management oversight and extensive supervisor involvement in activities were noted. Normal oversight group activities and quality assurance department activities were good. However, in some cases management failed to take effective actions on quality assurance identified deficiencies. Further, as noted above, personnel performance issues and equipment failure continued to cause problems at both units.

II.B Facility Performance Analysis Summary

FUNCTIONAL AREA		Rating, Trend Last Period	Rating, Trend This Period
1.	Plant Operations - Unit 1	2	2
	Plant Operations - Unit 2	2	2
2.	Radiological Controls	2	2
3.	Maintenance/Surveillance	2	2 (Declining)
4.	Emergency Preparedness	1	1 (Declining)
5.	Security	1	1
6.	Engineering/Technical Support	2	2
7.	Safety Assessment and Quality Verification	2	2

Previous Assessment Period: March 1, 1990 through March 31, 1991

Present Assessment Period: April 1, 1991 through May 23, 1992

III. PERFORMANCE ANALYSIS

III.A Plant Operations

III.A.1 Unit 1

During the previous SALP period, Unit 1 Plant Operations was rated as Category 2. The Unit 1 operations department demonstrated significant improvement in performance. The operations staff successfully met the challenges of a transition from the prolonged shutdown, through the extensive power ascension test program (PATP), to full power operations. Operations management improved oversight and assessment capabilities as reflected in the PATP self-assessment and the successful application of lessons learned.

III.A.1.1 Analysis

Overall, the Unit 1 operations staff demonstrated good performance during this assessment period. The operators performed well despite challenging equipment failures. A good safety perspective was evident during routine plant operations. However, the isolation of the ultimate heat sink and the failure to address a problem with the reactor protection system reflected significant weaknesses in adherence to program requirements and attention-to-detail. Strengths were noted in training and operations support.

Strong performance was demonstrated by the absence of unplanned shutdowns or reactor scrams resulting from operator error. In addition, operators responded well when challenged by equipment failures, which caused five of six automatic reactor scrams and one forced shutdown. The remaining reactor scram occurred when an operator closed the main steam line drain valves, in accordance with procedure, at low power during a shutdown. The procedure was changed to prevent closing these valves at low power levels. Excellent operator response to these shutdowns maintained the unit in a safe condition. Several other equipment failures did not result in plant transients due to prompt identification and very effective operator actions. In another instance, early detection and trending of an increasing unidentified drywell leakage rate allowed for shutdown of the unit before exceeding the technical specification limit.

Operators exhibited a good safety perspective during the conduct of routine plant operations. During rounds, operators identified equipment problems and initiated work requests and/or deviation event reports to obtain corrective actions. Operators responded promptly to alarms according to response procedures. Control room briefings conducted by the station shift supervisor at the start of each shift provided a sufficient amount of information to understand the shift goals and objectives. Utilization of repeat-backs during oral communications and use of self-checking techniques resulted in better control of operational activities. The performance of routine activities in a professional manner demonstrated good operator attitudes and the desire for error-free operation. Also, significant improvement late in the period in the content and quality of operator logs, including the documentation of the basis for operability determinations, allowed operators and management to maintain better awareness of plant activities.

Two significant instances of poor operator performance occurred during non-routine evolutions. A temporary loss of the ultimate heat sink resulted, in part, from an inadequate plant impact assessment of a maintenance activity in that the operating crew did not fully consider the potential consequences of testing a screenhouse gate while shutdown. Also, an improper assessment of a turbine first stage pressure annunciator resulted in operation with less than the minimum technical specification required reactor protective instrumentation. Operators failed to recognize the significance of the annunciator and thus, did not record this event in operating logs and did not initiate a deviation/event report to obtain corrective actions. An inadequate annunciator response procedure and weak training in the design of the reactor protection system turbine first stage pressure switches contributed to this event. Collectively, these events indicate that operations management was less than fully effective in enforcing adherence to established program requirements and attention-to-detail when performing plant impact assessments.

In response to these and other minor problems, prompt corrective actions were taken. Further, the operations department conducted an assessment of its effectiveness at analyzing and controlling plant operations. A reorganization of operations supervision and crew personnel better matched operator experience levels and leadership abilities. Training on procedural adherence and attention-to-detail resulted in better operator awareness of system status.

Operations management implemented several new initiatives to improve performance. Relocation of the station shift supervisor and assistant station shift supervisor desks provided for increased visibility and oversight of control room activities. The implementation of an operations department self-assessment program was an excellent initiative to identify performance trends and initiate corrective actions when warranted. However, this initiative needed further development to become fully effective. To allow more focused attention on the reduction of control room deficiencies, the operations manager developed a deficiency tracking and trending program for meters, annunciators, chart recorders and components.

The long term effectiveness of the above corrective actions remains a concern because of the long-standing nature of the deficiencies involved. Improvements to attention-to-detail and procedural adherence were principle elements of the licensee's Results Improvement Program and the Nuclear Business Plans. Although routine operations performance was generally good, the performance breakdowns during non-routine evolutions indicate that additional management attention is warranted.

The total number of licensed operators remained consistent with the previous period and supported a five shift rotation bolstered by a permanent day-shift relief crew. The implementation of a separate shift technical advisor position allowed the assistant station shift supervisor to be more effective in directing activities during operational events. An NRC requalification program evaluation examined 13 operators who successfully passed all portions of the examinations. The requalification training program attained a satisfactory rating with no generic weaknesses, which indicated that NMPC continued to maintain an effective training program.

The radwaste operations and fire protection personnel performed well this period. The operations support group assisted in resolution of complex technical issues such as the emergency ventilation testing issue. Good performance of these groups indicated effective operations management involvement and oversight.

Summary - Unit 1 Plant Operations

In summary, Unit 1 operations personnel performed well with some notable exceptions. Good performance was evident during operator response to equipment failures, problem identification, and routine plant operations. In two instances, weaknesses in plant impact determinations and procedural adherence caused plant problems. The operator training department performed well and strong management oversight was evident.

III.A.1.2 Performance Rating: Category 2

III.A.1.3 Board Comment: The occurrence of problems with procedural adherence and attention-to-detail suggest that the licensee's past actions to address these long-standing performance problems have not been fully effective. Continued licensee and NRC emphasis in these areas is appropriate.

III.A.2 Unit 2

The previous SALP report rated Unit 2 Plant Operations as Category 2. Overall performance was good, having improved substantially. While several personnel errors occurred, they resulted in events of low safety significance and were not indicative of poor operating practices. Licensed operators understanding of and ability to use the emergency operating procedures were considered strengths and indicated effective training.

III.A.2.1 Analysis

The Unit 2 operations department continued to perform well this assessment period. Operating crews successfully responded to several challenging events. Operator response to scrams and forced shutdowns was prompt and proper, however, one scram was the direct result of an operator error. Routine operation of the plant was generally good, with only occasional isolated instances of operator inattention-to-detail. The operations department management changes and the assistant station shift supervisor watch station relocation, as discussed below, were positive initiatives. Management continued noteworthy involvement in daily activities. The operator training and requalification programs supported safe operation of the plant.

The operating crews generally responded well to challenging plant transients. A main transformer fault in August 1991, caused a turbine trip, reactor scram, and a simultaneous common-mode loss of five non-safety related uninterruptible power supplies (UPS) that powered non-safety related control room instrumentation and plant equipment. The NRC Incident Investigation Team which reviewed this event determined that the operators correctly classified these circumstances as a Site Area Emergency and properly completed many high priority actions in a high stress, time-sensitive environment, while many of their normal indicators, alarms, and communications were misleading or not available. The operators diagnosed the instrumentation losses as UPS-related and then promptly restored the UPS loads. In summary, the operators successfully coped with this difficult situation.

Operators performed well during the March 1992 loss of both 115kV off-site power lines which caused a second loss of control room annunciators. The operating crew correctly classified the loss of control room annunciators as an Alert. Operators relied on incomplete information provided by technicians after the loss of the first off-site power line, that led to the total loss of off-site power. Operators made reasonable decisions to restore electrical power following the complete loss. The station shift supervisor exhibited good command and control while conducting plant restoration. However, the NRC Augmented Inspection Team which reviewed this event determined that NMPC management had not adequately considered the effects of a loss of off-site power on the instrument air system while shutdown, the need for enhanced electrical system recovery procedures, and the time required for a non-site operator to close the off-site power breakers. The team found that, because these issues were not fully considered, the operator's response to this event was unnecessarily complicated.

The operating crews demonstrated good performance during the unit startups and shutdowns. During the three automatic reactor scrams and one forced shutdown, the operators competently and professionally maintained the plant in a safe configuration. The operating crews properly conducted the subsequent unit startups with excellent communication and supervisory control. Equipment failures led to two of these three scrams. The third scram resulted from an inadequate procedure and a breakdown in communication between the station shift supervisor, the assistant station shift supervisor, and the chief shift operator.

Operators conducted routine activities in a well controlled manner. The operating staff satisfactorily controlled component and system status, monitored plant conditions, and identified problems during maintenance, surveillance, and outage activities. A diligent operator, investigating a hissing sound, identified a shattered main generator sight glass leaking hydrogen into the turbine building. In another example, an operator demonstrated good system knowledge and a questioning attitude in identifying a problem with the air start receiver pressure during a tour of an emergency diesel generator room. Excellent shift crew turnovers, log keeping, and proper use of the deviation/event report system provided management with a good awareness of daily problems and operating concerns.

In contrast to the above, several minor instances of personnel inattention-to-detail occurred which resulted in several engineered safety feature actuations, a configuration control problem with a secondary containment unit cooler, and a loss of condenser vacuum due to an operator not following an approved procedure. Although these instances were minor they indicated that the actions taken previously by NMPC to address these performance problems have not been fully effective, and that there is a continued need for heightened supervisory and management oversight.

Operations department management demonstrated good performance through aggressive problem identification and resolution. Corrective actions developed from event critiques were generally thorough and appropriately implemented. NMPC management successfully implemented a self-assessment program to detect and correct performance issues. Although management changes were made, including a new department manager and several new supervisors, a high level of experience and technical knowledge was maintained. Moving the assistant station shift supervisor from the station shift supervisor's office to the control room floor enhanced the supervisory presence in the control room and allowed both the assistant station shift supervisor and station shift supervisor a more broad and independent perspective of the operational conditions affecting plant safety. Management committed adequate resources, regularly reviewed, and made satisfactory progress in reducing the number of nuisance control room alarms.

The implementation of the operator training and requalification programs were effective this period. Operator performance following the failure of the station transformer and the loss of off-site power events reflected positively on the training department. Overall, licensed personnel performed well during an NRC-administered requalification examination. Planning and administration of the examination and crew teamwork in the simulator were good. Ample staffing existed this assessment period with the operators in a five-shift crew rotation and a permanent day-shift relief crew.

<u>Summary - Unit 2 Plant Operations</u>

In summary, the operations department demonstrated good performance with the exception of some minor instances of inattention-to-detail. The operating staff encountered and successfully met a number of significant challenges to their capabilities, caused mainly by equipment failures. Operations department management was strongly involved in daily activities. Staffing levels were ample and the training department performed well.

III.A.2.2 Performance Rating: Category 2

III.B Radiological Controls

In the previous SALP period, this functional area was rated as Category 2. Performance in the area of ALARA was generally good with some ALARA shortcomings identified during the Unit 2 first refueling outage. Radioactive waste (radwaste) processing and transportation remained a strength. Radiological chemistry controls were good and progress was noted in the area of effluent monitoring.

III.B.1 Analysis

Radiological Controls

NMPC continued to maintain an effective radiological controls program at both units. ALARA performance was good with notable improvements in the program and performance at Unit 2. Minor areas of mixed performance were noted at both units. Radiation protection staffing remained good with several organizational changes. Training remained highly effective. The external and internal dosimetry and respiratory protection programs performed well. The quality assurance program continued to be a notable strength in this area. The radwaste programs at both units performed very effectively.

Significant improvements were made by NMPC in its corporate ALARA program and in its ALARA performance at Unit 2, while maintaining an outstanding ALARA program at Unit 1. NMPC senior management developed a corporate ALARA policy, which included specific performance goals for all major departments at the site, and clearly demonstrated its support of the ALARA program to all workers. During the second refueling outage, Unit 2 established a challenging ALARA goal which was one-third lower than its total dose during the first refueling outage. This outage was completed with a total dose 10% lower than this goal. Strong support for the ALARA program and its goals by the major department heads and plant manager was observed.

While performance was generally good, several instances of poor performance occurred. Both units had problems in late 1991 with operations department personnel making improper High Radiation Area entries. At Unit 2, plant personnel were observed exiting the Radiologically Controlled Area (RCA) without properly frisking and in one case radiation protection technicians did not properly assess the cause for alarming airborne activity monitors in the Unit 2 reactor building. Radiological safety postings and surveys of areas within the RCA were generally good at both units. However, radiological housekeeping was a problem at Unit 2, where multiple instances of poor worker housekeeping practices were noted.

NMPC internal dosimetry and respiratory protection programs were determined to be generally good, and the licensee took corrective actions to upgrade its procedures in this area to address concerns raised during the previous SALP period. The external dosimetry program was also conducted well. Late in the assessment period, NMPC began a program to fully review all dosimetry records to validate data in preparation for the implementation of a computerized radiation protection records system. Errors identified by the end of the period involved improperly prepared and documented worker dosimetry forms.

Staffing levels remained good, with all key positions filled by competent professionals. In late 1991, NMPC disestablished the site radiological support organization, which had been implementing the transportation, dosimetry and respiratory protection programs for both units and gave responsibility for these programs to the unit Radiation Protection Managers (RPMs). This move improved the RPMs' control over all areas of the radiation protection program. No changes in staffing levels within these functional areas occurred as a result of this action. Each unit now has responsibility for its own transportation activities, while Unit 1 supports both units for internal dosimetry and respiratory protection, and Unit 2 supports both units for external dosimetry.

A highly effective training program for both radiation protection and radwaste personnel was also continued. A minor weakness identified during the last assessment, involving training of the training department staff, was corrected during this assessment period. A well developed training program for contractor radiation protection technicians was also implemented during this assessment period, as demonstrated by the lack of personnel errors.

The NMPC quality assurance program in the radiological protection and radwaste areas continued to be a notable strength, with exceptional scope and technical depth in the audit and surveillance program. NMPC management continued to utilize this program to improve its own performance by taking prompt actions on all findings and recommendations contained in these reports.

NMPC continued to implement a very effective radwaste program at both units. Radwaste operators maintained strict access control of personnel and oversight of activities in the radwaste buildings. A new radwaste general supervisor position provided increased oversight of that group. All shipments were made in accordance with the applicable DOT and NRC regulations, and all waste shipments were found to be acceptable to the disposal sites. NMPC also exhibited a high degree of sensitivity with regard to problems involving a shipping cask utilized in the transport of highly irradiated reactor components from the Unit 1 spent fuel pool. Despite significant problems associated with the use and decontamination of this shipping cask, the licensee made several successful shipments.

Radiological Environmental and Effluent Monitoring Programs

NMPC continued to implement a strong radiological environmental monitoring program. NMPC operated an extensive surveillance program for the collection and analysis of environmental samples and for the meteorological monitoring instrumentation.

A programmatic weakness involving the operability of effluent monitors was identified during the last two SALP periods, with several effluent radiation monitoring systems (RMS) out of service due to design deficiencies. Special management attention was provided, and initiatives to improve the operability of effluent monitors were developed. Management's commitment to maintaining the operability and reliability for all effluent RMS was demonstrated effectively during this SALP period, with significant improvement noted in the operability of the effluent RMS. Liquid and gaseous effluent sampling, analysis, and reporting were good. Air cleaning systems were well maintained and tested.

Quality assurance audits covered the stated objectives and were of excellent technical depth to assess the off-site dose calculation model radiological environmental monitoring, and radiological effluent monitoring programs.

Summary - Radiological Controls

In summary, NMPC has made significant improvements in its ALARA program at Unit 2, while maintaining a very effective ALARA program at Unit 1, together with strong radwaste, transportation and radiological environmental monitoring programs at both units. The radiological controls program was generally good at Unit 1, while continued weaknesses in this area at Unit 2 were observed, with examples of this weakness evident in radiological housekeeping, a High Radiation Area entry, and improper RCA exiting. The operability of the effluent RMS was significantly improved, while continuing to maintain very effective liquid and gaseous effluent control programs.

III.B.2 **Performance Rating: Category 2**

III.B.3 **Board Comment:** The Board recognized that significant improvement in the performance of the Unit 2 ALARA program was achieved.

III.C Maintenance/Surveillance

During the last assessment period the combined Maintenance/Surveillance functional area received a Category 2 Rating. At Unit 1, maintenance performance improved, in part, due to good procedural adherence. However, some instances of poor maintenance practices resulted in unplanned shutdowns. Progress in reduction of the work request backlog was made. Performance in the surveillance area demonstrated improvement. Good planning and effective management oversight resulted in proper execution of the start-up test program.

Unit 2 demonstrated generally good performance in maintenance and efforts to improve procedural controls and personnel procedural adherence were evident. Maintenance personnel significantly reduced operational events involving preventive or corrective maintenance. Progress was noted in reducing the work request backlog. Surveillance testing was generally good. The maintenance department satisfactorily implemented inservice inspection and inservice testing programs during the period.

III.C.1 Analysis

III.C.1.1 Unit 1

Maintenance

The Unit 1 maintenance staff demonstrated generally good performance during this assessment period. Maintenance personnel performed well during corrective and preventative maintenance activities. A few noteworthy instances of poor maintenance performance occurred due to weak procedural adherence and inattention-to-detail. These included a significant breakdown in the implementation of the work control program leading to the temporary isolation of the unit from its ultimate heat sink. Strong management oversight maintained a low maintenance backlog, improved in-field supervision, and good overall plant material condition. Several operational events resulted from various causes including age-related degradation of non-safety equipment. The outage planning organization functioned well over the period.

Maintenance workers generally demonstrated good performance during corrective and preventive maintenance. During preventive maintenance on containment spray heat exchangers and on the emergency diesel generators, maintenance personnel exhibited good work practices and good safety perspective.. Maintenance personnel exhibited a questioning attitude by identifying improperly operating equipment and potential problems during plant tours. Staffing remained at a suitable level. Detailed post-maintenance tests verified effective completion of maintenance work. Excellent housekeeping practices and the overall condition of the plant equipment and areas reflected a conscientious attitude. The painting of the walls and floors in the reactor building represented a significant effort to improve plant housekeeping.

A few instances of poor performance occurred due to inattention-to-detail and poor procedural adherence. Also, a significant breakdown in the implementation of the work control process occurred in February 1992, which resulted in the temporary isolation of the unit from its ultimate heat sink. This latter event resulted from failure to follow established work control processes, inadequate management attention in assuring that procedures were being followed, inadequate communications between several NMPC organizations, and from inadequate consideration of the risks associated with the activities being performed. Other minor examples of poor performance also occurred, which reflected weaknesses in supervisor and management oversight. In contrast, good management oversight led to maintaining preventive and corrective maintenance backlogs low. Further, managers and supervisors were frequently present in the field to oversee work practices.

NMPC management took prompt and thorough corrective actions to address the causes for the breakdown in the work control process discussed above. These actions included a high quality, self-critical assessment that developed corrective actions for the identified causes. NMPC implemented a monitoring process which provided management assessments of work control activities. Managers and supervisors conducted this activity at both units to develop an understanding of the weaknesses and the need for more management oversight of the process. The overall scope of this program appeared good; however, its long term effectiveness remained a concern.

Failures of balance-of-plant equipment challenged plant operators by causing five of the six reactor scrams, the one forced outage, and several forced reductions in power. NMPC identified the need to increase the effectiveness of preventive maintenance performed on balance-of-plant equipment and initiated short and long-term corrective actions. The effectiveness of these actions in reducing plant scrams and transients has yet to be demonstrated.

Aggressive planning and scheduling during routine operations ensured the safe and effective completion of work. During forced outages the planning department quickly developed detailed work and contingency schedules. Pre-planned outage work was coordinated and implemented effectively. Increased management oversight, during outages, resulted from the addition of a shift manager responsible for tracking work and maintaining an overall status.

Surveillance - Unit 1

The NMPC staff effectively implemented the Unit 1 surveillance test program. Testing identified conditions needing correction before equipment failure occurred. The NMPC staff conducted testing well, in accordance with approved procedures. Scheduling and tracking of surveillance tests continued to be effective. The inservice testing (IST) and inservice inspection (ISI) activities were properly scheduled and conducted.

During the period, surveillance testing was properly conducted and led to the identification of equipment needing repairs. The NMPC staff effectively documented surveillance testing problems on work requests and/or deviation/event reports as necessary to allow corrective actions. A review of the reactor building emergency ventilation system testing identified that the test acceptance criteria during a secondary containment drawdown test was not in conformance with the design requirements of the system fans. Prompt actions to develop a new acceptance criteria resolved this issue.

The NMPC staff generally used properly prepared test procedures and correctly recorded test data. Three inadvertent engineered safety feature actuations occurred relating to testing. These actuations were minor, not directly related to personnel errors, and did not indicate any programmatic problems. However, in one instance maintenance personnel installed test instrumentation on several core spray system pressure control valves. This installation was done informally, not in accordance with the temporary modification procedure, and without regard for

the impact on system operability. NMPC took adequate actions to ensure the installation of test equipment in accordance with an approved procedure. In another instance NMPC identified and properly dispositioned an issue that timers in the automatic initiation logic for the reactor building emergency ventilation system had not been tested.

The scheduling and tracking of surveillance testing remained very good. A computerized data base provided an effective management tool.

The ISI/IST program was generally effective over the period. Changes to the structure of the programs occurred during efforts to streamline the nuclear division. The ISI/IST group, which previously reported to site engineering, divided such that ISI reported to the quality assurance department, and IST reported to the operations department. There have been no observable impacts of these changes on performance in the surveillance test area. During the period ISI activity was low because of the unit outage scheduling. NMPC enhanced the program by providing dedicated IST personnel to perform the ultrasonic flow and vibration measurements on all equipment. This action and special technician training on the use of ultrasonic flow instrumentation significantly reduced the possibility for inaccurate data.

III.C.1.2 Unit 2

Maintenance

The Unit 2 maintenance department continued to demonstrate good performance this assessment period. Maintenance personnel knowledgeably performed activities and demonstrated the proper safety perspective; although, inattention-to-detail resulted in several operational events. The maintenance work request backlog remained high; with few exceptions, management effectively tracked and properly dispositioned work requests to ensure system operability. Material condition throughout the plant remained good. Maintenance supervisors generally performed well and satisfactorily monitored daily maintenance activities. The training and qualification programs were effective and maintenance staffing levels remained stable. The planning department provided good support for planned and forced outage work.

Maintenance personnel were knowledgeable and experienced and they generally performed corrective and preventive maintenance in a professional manner. However, performance overall was inconsistent. While there were no plant transients related to performance of maintenance activities, maintenance personnel performance was poor related to the dropping of two new (non-irradiated) fuel assemblies. In addition, several other personnel errors occurred that caused engineered safety feature actuations. NMPC took good corrective actions in response to these events. These maintenance errors were not indicative of programmatic maintenance failures, but were isolated examples of poor work practices and inattention-to-detail.

The maintenance request backlog remained high throughout most of the assessment period. Plant events and the increased scope of the refueling outage precluded a net reduction in the total backlog, however, management prioritized and dispositioned the work requests in a manner consistent with continued safe operation of the plant.

Oversight of activities by maintenance management and supervision was generally good this assessment period, but with notable exceptions. The maintenance management established clear standards for supervisor work observations. First line supervision positively contributed to the work quality by clearly communicating management expectations and consistently observing daily maintenance activities. The supervisor's knowledge and oversight were considered strengths, especially during the recirculation loop sample line corrective maintenance.

Maintenance management demonstrated a good safety perspective during the emergency diesel generator cylinder liner replacements due to tin smear. However, maintenance management oversight was not fully effective at preventing significant errors as evidenced by the event in which new fuel bundles were dropped and by the events in which offsite power and control room alarms were lost.

The maintenance technical training and qualification programs functioned well as exemplified by a strong maintenance welding training program. The mechanical maintenance training program was good. In general, the material condition of plant equipment was good. The maintenance staffing levels remained stable this period.

Surveillance - Unit 2

The Unit 2 staff appropriately implemented the surveillance testing program and positively contributed to the continued safe operation of the plant. Knowledgeable and professional personnel successfully completed technical specification surveillance tests within the specified frequencies with few exceptions. However, inattention-to-detail contributed to several minor errors. For example, a technician error caused an inadvertent start of the high pressure core spray pump and its associated emergency diesel generator. Once identified, NMPC took adequate corrective actions to address each of these instances. The surveillance testing problems encountered over the period were isolated and of minor safety consequence.

The surveillance testing program, including IST, properly demonstrated the operability and availability of safety systems to perform their intended function. Management properly dispositioned equipment deficiencies identified during surveillance test. A service water system check valve failure identified during an IST reverse flow test was properly resolved. Testing and subsequent troubleshooting on the standby gas treatment system allowed identification and correction of a condition which could have caused system valves to fail in a non-conservative position.

Review of the ISI program for the recirculation system piping and a sample of nondestructive examination data indicated that the program met the applicable requirements and was well managed. These instances were evidence of good quality control of inspector qualifications, proper procedures, and resolution of indications. The erosion/corrosion program for high energy piping systems properly addressed the effects of flow assisted phenomena. The snubber testing and local leak rate testing (LLRT) programs continued to be implemented well.

Overall Summary- Maintenance and Surveillance Units 1 and 2

The maintenance staff at Unit 1 generally performed well with some notable exceptions. Increased supervisory and management presence in the field, low work request and preventive maintenance backlogs, and good team work between the maintenance department and other working groups indicated generally good management oversight. However, a significant program implementation breakdown during maintenance activities on a screenhouse gate occurred which resulted in a temporary loss of the ultimate heat sink which challenged the operations staff. Although short and long term corrective actions were initiated to address the high number of maintenance-related scrams and events, their continued occurrence indicates that the efforts have been less than fully effective. The surveillance test program, including ISI and IST activities, was effective at identifying and correcting equipment deficiencies.

The maintenance department at Unit 2 continued to demonstrate generally good performance. Maintenance personnel knowledgeably performed maintenance and surveillance activities, demonstrating the proper safety perspective. However, a poor plant impact assessment led to a loss of off-site power and poor supervision contributed to the dropping of two new fuel bundles. The plant material condition and overall management of work planning was good. Maintenance department management oversight was considered a strength. The surveillance testing program, including the ISI and LLRT programs, consistently confirmed the operability of safety systems.

III.C.2 **Performance Rating: Category 2**

Trend: **Declining**

III.C.3 **Board Comment:** In general, the station performance in the maintenance area was good, but inconsistent. Based on repeated instances of maintenance-related scrams and events, which occurred at both units throughout the period, the board concluded that overall effectiveness of the program was declining.

III.D Emergency Preparedness

For the last SALP period, Emergency Preparedness was rated as Category 1. Strengths included: appropriate and timely classification of six Unusual Events, sufficient emergency planning (EP) department staffing, Emergency Response Organization (ERO) depth, and effective training. One exercise weakness resulted from failure of an ERO manager to request core damage assessments and another resulted from failure to consider plume trajectory variability when calculating projected doses. Subsequent inspection found that appropriate corrective action was taken for these matters. Slowness in resolving 1988 Emergency Response Facility Appraisal items indicated a lack of proper management attention to certain items.

III.D.1 Analysis

NMPC implemented an excellent EP program over the period. When challenged by actual events, including a Site Area Emergency (SAE), the emergency plan functioned effectively. Further, each event was analyzed by the EP staff and actions were taken to address areas for improvement. Management, including EP, site and corporate, involvement in this program was good. However, actions to address deficiencies identified related to the drill/exercise program were not fully effective. Additionally, no assurance of periodic Emergency Response Organization member participation in drills/exercises was identified. Emergency facilities and equipment were properly maintained, and the resolution to facility issues was acceptable. The quality assurance program remained effective in auditing this area.

The Nine Mile Point Site Emergency Plan (SEP) was shown to be effective during several actual events, including a SAE at Unit 2 as a result of a plant transient with a loss of control room annunciators and a partial loss of plant instrumentation. During these events operator and management response was excellent, and event classifications were timely and proper. There was good assignment of emergency responsibilities by the Shift Supervisor and overall actions taken by response personnel were effective. Personnel accountability was not, however, accomplished for about three hours (as compared to a 30-minute goal). Also, notification of the Emergency Response organization was initiated one hour after SAE declaration. The licensee critiqued its response, compiled a comprehensive list of items for corrective action, and made good progress on item correction.

An Alert and several Unusual Events also required Unit 2 SEP implementation. Again, event classifications and operator and management responses were proper. During the Alert, turnover of Emergency Director duties from the station shift supervisor to Emergency Response Organization Emergency Director was conducted well, and personnel in the Technical Support Center functioned effectively.

Timely corrective actions initiated to address weaknesses identified by NMPC's self-critique following the SAE indicated effective management control. Good progress was made in the resolution of the SAE action plan high priority items. In particular, the licensee tasked Security

with personnel accountability instead of that responsibility being shared by Operations, Maintenance, and Security. This change appeared beneficial to ongoing accountability and the licensee reported that three drills have since found accountability is not a problem. However, the NRC has not yet had the chance to observe accountability effectiveness during an exercise or actual event.

Two station drills were conducted in 1991 in addition to the smaller scale drills required by the emergency plan, meeting NRC requirements. However, drill/exercise weaknesses were evident. The licensee did not effectively review repetitive problems identified during these drills/exercises for common cause factors; an example was the late notifications for the February 26, 1991 licensee drill, the August 1, 1991 licensee drill, and the August 13, 1991 SAE. In addition, ERO member participation in drills was voluntary, with no assurance of periodic participation identified.

Based on the actual response to the Unit 2 SAE, NMPC requested and was granted an exemption from the required 1991 annual emergency exercise. The request and the response to the NRC staff request for additional information were thorough, complete, and timely. NMPC demonstrated an understanding of the regulatory issues involved as well as the method and bases for their satisfactory resolution. The exemption request justification contained sound technical judgements based on thorough analysis.

Ample ERO staffing was maintained, with all positions filled at least three deep. Also, at the end of the period, the NMPC EP Branch was creating a scenario development committee to prepare the 1992 emergency exercise scenario, which was a good initiative. Classroom training, held throughout the year, was well defined and lesson plans were properly controlled, accurate and well detailed. A positive initiative to shift from classroom-based toward performance-based training was in progress. NRC walk-through drills of on-shift dose assessors confirmed training effectiveness in that function.

The EP program was administered by the Director, Emergency Planning, with good station and corporate management involvement in EP activities. The EP staff held regular meetings with State and local officials, and maintained a good, close relationship with off-site groups. The EP department was sufficiently staffed by eight individuals, including an SRO-qualified individual (responsible for drill/exercise development) and a meteorologist. The EP staff implemented essential program tasks. Although there was no assigned health physicist in the EP Branch, the obstacle of obtaining health physics support for drill/exercise scenario development was overcome by the use of temporary contractor support and good EP staff knowledge of Emergency Plan Implementing Procedures (EPIPs). Station and corporate management maintained emergency response qualifications, reviewed and approved emergency plan and procedure changes, participated in drills and exercises, and interfaced with State and local agencies. Senior management assumed both Site Emergency Director and support roles during the SAE and the March 1992 Alert and performed well.

Emergency response facilities, equipment, and supplies were well maintained. The Operations Support Center, which was a multiple use facility, became dedicated solely to emergency response and improved in-plant response activities. EPIPs were well-stated. EPIP changes initiated in response to areas needing improvement from the SAE were generally appropriate, properly reviewed, approved, and distributed.

Resolution of the 1988 Emergency Response Facility (ERF) appraisal items continued to progress acceptably. Three items were closed in April 1992. Three other items (safety parameter signal isolation, plant computer reserve capacity, and Emergency Operations Facility shielding) remain open. Safety parameter isolation and plant computer reserve capacity items appear to be on track for completion during 1995. The commitment to complete a revised EOF shielding analysis is now scheduled for completion by the end of 1992.

NMPC's quality assurance program conducted effective EP audits. Unannounced QA checks of EP, e.g., carrying of Oswego County cards for expedited transit through roadblocks, were assessed as a strength. The technical specification audit was combined with the 10 CFR 50.54(t) review and was appropriate in scope, thorough, and received wide management distribution. The audit report was provided to state and county officials. NRC review noted opportunities for improvement in the information contained in the audit/review plan, such as the absence of specific direction as to the evaluation of the adequacy of off-site interface required by 10 CFR 50.54(t).

Summary - Emergency Preparedness

NMPC continued to implement an effective EP program as demonstrated by responses to actual plant events. Management involvement in EP was good. Audits/reviews, quality assurance checks, and readiness of emergency response facilities were strengths. EP staffing was sufficient to support overall response activities. Resolution of ERF appraisal items progressed acceptably. However, weaknesses in the drill/exercise program, including the indication of inadequate review of repetitive problems for common cause factors, were noted.

III.D.2 Performance Rating: Category 1

Trend: Declining

III.D.3 Board Comment

Although no specific performance problems have been identified, the Board was concerned with the voluntary nature of participation of ERO personnel in drills and exercises.

III.E Security

During the previous assessment period, the licensee's performance was rated Category 1. That rating was based on excellent security practices; a sound performance-oriented training program; effectively installed and well-maintained equipment; and a very competent management team who assured implementation of a high quality program.

III.E.1 Analysis

During this assessment period, the security program continued to be carried out effectively and in accordance with NRC requirements and NMPC commitments. Corporate and plant management support continued to be a notable strength as evidenced by the planning and budgeting for program upgrades, active participation in groups engaged in nuclear plant security matters, and continued excellent rapport and liaison with state and local law enforcement agencies. Although a corporate staff reduction policy resulted in a significant reduction in security staffing, previously planned upgrades were completed on schedule, which indicated the ability of the NMPC security program to adjust to changing circumstances. The more significant of these upgrades was the addition of state of the art equipment to the assessment system, the installation of a card reader system to enhance vehicle and driver access to the protected area, and the enhancement of the tactical firearms training course.

A notable strength in this program area was the continued assignment of instrumentation and controls (I&C) technicians to the security organization to maintain security equipment and implement upgrades. The I&C technicians effectively maintained systems and equipment and thereby reduced the need for compensatory measures and personnel overtime. Although the number of technicians was reduced, the licensee maintained an excellent testing and maintenance program.

The training program was well developed and administered by a staff of experienced, knowledgeable professionals. Training facilities and training aids were appropriate and well maintained. The effectiveness of training was apparent by the limited number of personnel errors. However, exterior patrol officers did fail to detect, for an indeterminate period, damage to the intrusion detection system caused by inclement weather. The Training Department promptly reemphasized patrol officer duties during shift turnover in an effort to prevent recurrence. The Training Department also enhanced the contingency response training by placing emphasis on tactics and weapons handling. Additionally, all lesson plans and crucial tasks were revised to be more performance-based and a new tracking system was implemented to ensure all requalification requirements were met. The Training Department was actively involved in all security drills and utilized the feedback from the drills to enhance the effectiveness of the program. Interviews of security officers indicated that the training received was effective and directed to ensuring that security objectives were properly met. Security officers displayed high morale and were knowledgeable of their post assignments and responsibilities.

Based on the initial inspection of the licensee's Fitness-for-Duty (FFD) program during this period, it was determined that the development and implementation of the program was aggressive, comprehensive, and directed toward public health and safety. Management support for the program was demonstrated by the high quality of the facilities and personnel responsible for program implementation. Corrective actions taken to resolve potential program weaknesses were prompt and effective, indicating a quality program with appropriate management attention.

NMPC quality assurance audit program for security audit was comprehensive in scope and performance-based. The licensee used a consultant to provide technical expertise to the Quality Assurance audit team. No adverse findings were identified and recommendations made to strengthen the program were promptly and effectively implemented. Additionally, the licensee continued the initiatives of self-assessments and appraisals to provide oversight of security program implementation and personnel performance.

A review of the loggable events demonstrated that the self-assessments and appraisals were effective in that few events were repetitive and personnel errors were rare. In addition, loggable events were appropriately analyzed, tracked and corrective actions, where required, were timely and effective. Event reporting procedures were clear and consistent with NRC reporting requirements. No prompt reportable security events occurred during the period. The reporting procedures were well understood by security supervisors and were consistent with NRC regulations.

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

Summary - Security

The licensee continued to maintain a very effective and performance-based security program. Management support and effective program oversight continued to be evident throughout the period. The continuing efforts expended to upgrade the security program, to resolve discrepancies before they became problems, and to maintain an effective training program demonstrated the licensee's commitment to maintaining a high quality program.

III.E.2 **Performance Rating: Category 1**

III.E.3 **Board Comment:** The Board noted the consistent excellent security performance over the last several SALP periods.

III.F Engineering/Technical Support

Last period this functional area was rated as a Category 2. NMPC showed evidence of increased management involvement in engineering activities compared to the previous assessment period. The addition of the system 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. The following areas were identified as needing improvement: implementation of a technical training program; quality and review of engineering work; and engineering management oversight. Overall, engineering and technical support performance was good and generally improved.

III.F.1 Analysis

The NMPC engineering organization generally provided high quality work products, in support of safe operation of both units.. Effective actions were taken to address previous concerns over the quality and review of work, amount of oversight by engineering management, and the adequacy of the technical training program. However, there were weakness noted in the administration and implementation of the temporary modification process. The system engineers continued to perform well in addressing day-to-day issues and the interface between them and the other engineering organizations was good. The modification and design control processes functioned well. Inconsistencies were noted in the quality of the engineering basis for some submittals to the NRC.

Engineering/technical support to assure safe plant operation was provided by the site, system, and corporate engineers for each unit. The site engineering group with design authority stationed at each unit provided good representation of corporate engineering which expedited the engineering and technical support for the station. The engineering support for the Unit 2 second refueling outage was good and design changes needed for the upcoming Unit 1 refueling outage were on schedule. The system for assigning priorities to plant nuclear projects had the proper safety emphasis. Priority safety significant projects were on schedule and completed when necessary.

Engineering management took effective actions to improve the timeliness and quality of engineering work through a performance monitoring and measurement system and an independent assessment process. The engineering organizations, dedicated to each unit, properly set goals and measured their performance. However, the backlog of deficiency/event reports, temporary modifications, and plant change requests requiring engineering review and disposition remained high and required continued management attention. Improvement was demonstrated by the capability to resolve technical issues and to deliver quality engineering products. Notable examples at Unit 1 include: a sound safety evaluation for operation above 80% power with only two feedwater heater strings operable; and the investigation of the root cause and scope of cracks in the emergency cooling system valves. At Unit 2, some notable examples include: resolution

of a crack in the high pressure core spray safe end extension nozzle weld; good evaluation and corrective action for a recirculation loop sample line failure; and very effective analysis and corrective actions following determination of a design deficiency in the cooling water system which supplies the Division III emergency diesel generator.

Increased management oversight of engineering work was evidenced by the implementation and monthly review of the top 10 list of issues at each unit. The configuration management program at Unit 2 was also effective. Task managers and a senior engineering review team were assigned to resolve and followup the technical issues developed during the Unit 1 design basis reconstitution effort, which was well controlled. The completed system design descriptions clearly addressed the system design requirements, operating limits, test and surveillance requirements, maintenance considerations, and regulatory requirements. Increased engineering management involvement, controls and initiatives to assure quality of engineering products were observed during this assessment period. A Safety Review and Audit Board engineering subcommittee was formed to assess the engineering activities. The Independent Safety Engineering Group monitored engineering work activities and performance. Further, when the deviation/event report process was used it was effective at identifying and correcting problems.

While the above actions were generally effective, the backlog of temporary modifications for both units remained high and in need of continued management attention. The NRC found that there have been instances of inadequate controls over temporary modifications at both units. For example, the installation of temporary ventilation equipment in the reactor building at Unit 1 was not processed as a temporary modification. Also, temporary equipment installed between the make-up water system and service water radiation monitors in Unit 2 was not removed as required by the temporary modification procedures.

A technical training and qualification program was effective at ensuring the technical competency and familiarity of the corporate and site personnel with their responsibilities. In response to the previous weakness in this area, NMPC established and implemented a broad-based technical training program for the corporate engineering staff in January 1992. This training program was comprehensive and enhanced the knowledge and skills of engineering personnel. A continuing training program for corporate engineers was being developed by an engineering training advisory committee.

System engineers continued to provide good support for the operation of both units. For example, system engineers demonstrated: excellent knowledge of the loss of uninterruptible power supplies (UPS) during the event at Unit 2 and provided clear explanation of their design during several meetings with the NRC; good support during system troubleshooting and determination of root causes following reactor scrams and unexpected events; timely identification of cylinder liner tin smear during the emergency diesel generator (EDG) overhauls at Unit 2; and good determination of control rod drives needing replacement and establishment of an EDG reliability enhancement program at Unit 1. The reactor engineering group conducted post scram reviews of consistently high quality, and provided effective oversight of the spent fuel pool cleanup effort and fuel performance activities.

An effective interface between the station and corporate engineering personnel existed at both units. The staffing of site and system engineering groups for each plant to support the engineering/technical needs of the plant contributed to the effectiveness of this interface. NMPC effectively improved communications between the corporate engineering staff and other organizations on-site, through routine meetings to resolve issues. The active participation of management representatives from different organizations at these meetings facilitated effective communication. However, poor engineering involvement was noted during NRC review of the inadvertent isolation of the ultimate heat sink at Unit 1.

Modifications and design changes were of good quality and technically accurate. Engineering management involvement, project team oversight, and oversight of consultants used to resolve issues were observed to be good. Engineers and project team members were very knowledgeable of their modifications and design changes and the 10 CFR 50.59 process. The Station Operation Review Committee (SORC) review, engineering technical reviews, post-modification testing, and adherence to the procedures for the modifications were found to be good. Good interaction between system engineers and corporate engineers were noted during this process. Examples of good modifications included: a snubber reduction program and resolution of the feedwater stratification issues at Unit 2; and feedwater flow control valve inspection/modification and the installation of the static invertor battery chargers at Unit 1. Both units developed a comprehensive approach to limit the impact of zebra mussel intrusion on plant water systems.

Inconsistencies in the quality of engineering submittals to the NRC were identified during this period. For example, the calculations supporting a proposed revision to the Unit 1 pressure/temperature limits were well prepared. Also, analysis of the flaw in the Unit 2 high pressure core spray nozzle safe end extension weld was excellent and responses to requests for additional information on this issue were promptly provided. However, in contrast to this good performance, the no significant hazards consideration analysis in the Unit 2 license amendment request related to the automatic depressurization system test pressure contained only a minimally adequate analysis. The license amendment request to operate with a control rod uncoupled did not have an adequate safety evaluation. Furthermore, the NRC staff found the repair plan for the cracking identified in the Unit 1 emergency cooling system condensate valves did not provide sufficient engineering basis to allow non-ASME code repair to the reactor coolant pressure boundary.

Summary - Engineering and Technical Support

In summary, the engineering and technical support organization continued to provide good support to the station. The quality of engineering and management involvement improved compared to the previous SALP period. System engineers have continued to provide good support at both units. There have been some instances of inadequate control over temporary modifications. Inconsistencies in the quality of engineering submittals to the NRC were identified during the period.

III.F.2 Performance Rating: Category 2

III.G Safety Assessment/Quality Verification

The previous SALP report rated Safety Assessment/Quality Verification as a Category 2. NMPC demonstrated an improved approach to assuring quality and assessing the safety significance of issues affecting plant operations. 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 found to be effective in articulating management expectations and requirements and to be generally well understood and followed by Nuclear Division personnel. Licensing action submittals were generally considered to be technically adequate and timely. Overall performance in this functional area improved during the previous SALP period.

III.G.1 Analysis

While NMPC demonstrated generally good performance in this functional area during this assessment period, the implementation of programs and policies for correcting the causes for repeated inattention-to-detail and procedural adherence errors has not been fully effective. Management involvement in day-to-day events was evident, but not fully effective in reducing the number of scrams or significant operating events. Activities of the off-site, on-site, and independent engineering review groups were good. QA audits and surveillances were generally effective in the identification of problems; however, management failed to take action on some identified problems. NMPC actions in response to industry information were good. Self-assessment and other performance review activities provided effective evaluations of facility operations. Submittals and reports made to the NRC were generally of good quality.

The NMPC Nuclear Division Policy and associated Nuclear Division Directives were well written, assisted in clarifying management expectations, and defined responsibilities and accountabilities. However, implementation of these directives in some cases has not been fully effective. For example, the inadvertent isolation of Unit 1 from its ultimate heat sink and the dropping of two new fuel assemblies at Unit 2 were due to breakdowns in the control of work activities. These events and others discussed in the operations, radiological control, and

maintenance/surveillance sections of this report demonstrated that station management was not fully effective in ensuring that supervisors and managers enforced the expectations defined in these procedures. Significant corrective actions were taken in response to these and other events. However, these issues continued to adversely affect performance and are indicative of longstanding problems. The Executive Vice President-Nuclear moved his office from Syracuse, New York, to the site in late February 1992, as a positive initiative to increase senior management oversight of site activities.

Management involvement in day-to-day events has been good and there has been a significant level of supervisory presence in the field. Despite this involvement, communications within and among organizations participating in work activities have not always been fully effective. For example, the on-duty station shift supervisor was not informed of operations department concerns about performing the Unit 1 screenhouse gate tests which led to the loss of ultimate heat sink event. Likewise, the loss of off-site power at Unit 2 was caused by a combination of inadequate work package plant assessment and the reliance by control room operators on incomplete information provided by the relay technician after loss of the first off-site line. Further, there were six automatic scrams in Unit 1 and three automatic scrams in Unit 2 during this assessment period. Seven of the nine automatic scrams were attributed to equipment failures. The number of scrams indicates that management focus on the area of scram reduction is needed.

The safety oversight committees (Site Operations Review Committee and Safety Review and Audit Board) continued to perform thorough and effective reviews of issues and exhibited a strong safety perspective. Most members actively participated in committee discussions and exhibited conscientious and questioning attitudes. Topics presented for review, including significant operational events, were thoroughly evaluated.

The Independent Safety Engineering Group (ISEG) continued to provide NMPC with comprehensive and effective self-assessments and root cause evaluations. ISEG review of the dropped new fuel event at Unit 2 was an example of this, as was the thorough root cause analysis of temporary modification process at both units. The results of these reviews were presented in an organized manner and the root causes were correctly identified.

NMPC responses to 10 CFR Part 21 notifications and other industry notifications were prompt, thorough, and proactive. When NMPC management was informed by the NRC staff of a 10 CFR Part 21 notification to the NRC from another licensee regarding potential defective fuel injectors in Cooper-Bessemer diesels, the NMPC technical staff had already been apprised of the issue and had preliminary indications that the suspect injectors were not installed in the Unit 2 diesels. NMPC also made a proactive decision to immediately verify the Unit 1 EDG rotor pole mounting bolt torques rather than waiting to perform this check during an upcoming refueling outage. Likewise, NMPC took prompt action to inspect the Cooper-Bessemer diesels in Unit 2 for tin smearing following the receipt of new inspection guidance from the manufacturer.

Self-assessments performed during the period provided objective and thorough assessments of performance to management. The operation department self-assessment programs were excellent initiatives, which require some enhancements to be fully effective. The NMPC assessment of the Unit 1 loss of ultimate heat sink event was good. Generally, the deviation/event report system functioned as an effective tool to improve plant performance. However, this system was not utilized by site personnel to identify and correct a precursor event to the dropping of the two new fuel assemblies, nor to identify the inoperability of the two turbine first stage pressure sensors. When the system was used, corrective actions were appropriate and the system was properly monitored and audited for effectiveness.

Quality Assurance (QA) audits and surveillances were generally good. The scope and number of QA surveillances of radwaste activities were exceptional. However, QA activities in some cases were not fully effective in obtaining performance improvements. During evaluation of the loss of ultimate heat sink event, it was determined that NMPC had not been fully effective in correcting the root causes of instances of failure to follow procedures and inadequate work requests after these types of problems had been repeatedly identified in QA surveillances. The root causes of QA-identified problems were in some cases not effectively corrected or acted upon by site and corporate management.

With some exceptions as discussed in the Engineering and Technical Support area, a significant number of licensing actions were effectively processed by NMPC during this assessment period. These effectively processed actions included license amendment requests, exemptions, code relief requests, responses to generic letters and bulletins, multi-plant issues, and other regulatory initiatives. Generally, these submittals reflected good safety perspective, were technically sound, and supported resolution of the requested actions or safety issues. However, weaknesses were noted in the administrative review of retyped technical specification pages.

Licensee Event Reports (LERs) continued to be well-written and adequately described details of the subject events. For one report, however, several key points were not fully developed. When this issue was identified, NMPC promptly developed these points and issued a supplement to the LER.

Summary - Safety Assessment/Quality Verification

In summary, management oversight and supervisor involvement in day-to-day activities have been extensive. However, the high number of reactor scrams and significant events indicated that management had not been fully effective at addressing equipment failures and the longstanding personnel performance problems associated with attention-to-detail and procedural adherence. The safety oversight committees continued to perform a thorough and effective review of issues. The ISEG provided comprehensive and effective self-assessments and root cause evaluations. Responses to 10 CFR Part 21 notifications and other industry notifications were prompt, thorough, and proactive. Although QA audits and surveillances were generally good, the root causes of QA-identified problems were in some cases not effectively acted upon by site and corporate management. Most licensing actions continued to be technically sound, and supportive of resolution of the requested action or safety issue; however, several exceptions were noted which required additional interaction.

III.G.2 **Performance Rating: Category 2**

III.G.3 **Board Comment:** NMPC should implement a focused effort to monitor and reduce the number of scrams and significant events.

IV. SITE ACTIVITIES AND EVALUATION CRITERIA

IV.A Licensee Activities

During this assessment period Unit 1 operated at power until July 18, 1991, when increasing unidentified drywell leakage resulted in an unplanned shutdown. The cause of the leakage was identified and repaired, and the unit was returned to power operations. A number of additional forced shutdowns occurred as highlighted in Section IV.B. Following a May 1, 1992, reactor scram the unit remained shutdown through the end of this assessment period due to the identification of significant cracks in the emergency cooling system condensate return valves. Reactor fuel was off-loaded to facilitate weld repairs and replacement of the valves.

Unit 2 began the SALP period shutdown in an unplanned outage to facilitate repair to a leaking reactor coolant system pressure boundary flexible hose. A modification replaced the flexible hose with piping that contained an expansion loop and the unit returned to power operations on April 12, 1991. A number of forced shutdowns occurred as highlighted in Section IV.B. The unit was shutdown on March 4, 1992, to commence the second refuel outage. The unit remained shutdown through the end of this assessment period.

IV.B Unplanned Shutdowns, Plant Trips and Forced Outages

IV.B.1 <u>Unit 1</u>

	Date	Power Level	Root Cause	Functional Area
1.	7/18/91	3%	Unknown	N/A

Increasing unidentified drywell leakage resulted in the initiation of a plant shutdown. At 3% reactor power a high neutron flux reactor scram occurred due to either a pressure surge caused by isolation of an auxiliary steam load or due to a spurious spike of the intermediate range neutron monitor (LER 91-08). The unidentified drywell leakage initiated from a recirculation pump motor cooler mechanical joint, main steam isolation valve packing, and the packing of a recirculation loop isolation valve.

2.	9/26/91	97%	Equipment Failure	Maintenance

A reactor scram resulted from a turbine trip/generator load reject caused by a failed generator phase differential current transformer (CT) (LER 91-12). The failed CT was replaced.

	Date	Power Level	Root Cause	Functional Area
3.	12/4/91	96.5%	Equipment Failure	Maintenance

A low water level reactor scram occurred following the failure of a solder connection in the feedwater level control total steam flow meter. The steam flow signal went to zero, which generated a large flow/error signal and closure of the feedwater control valves. The total steam flow meter was replaced with a new meter which had a shunt across the input and output terminals to prevent reoccurrence of a zero output signal (LER 91-14).

4.	2/16/92	94%	Equipment Failure	Maintenance

A reactor scram resulted from a turbine stop valve 10% closure signal during weekly surveillance testing of turbine stop valves. A sticking pivot point and worn pin connection on turbine stop valve 13 initiated the event (LER 92-04).

5.	4/18/92	98%	Equipment Malfunction	Maintenance

A high neutron flux reactor scram occurred due to failure of the mechanical pressure regulator in the turbine control system (LER 92-08).

6.	5/1/92	97%	Equipment Malfunction	Maintenance

A high neutron flux reactor scram occurred due to failure of the electronic pressure regulator in the turbine control system (LER 92-03).

IV.B.2 <u>Unit 2</u>

	Date	Power Level	Root Cause	Functional Area
1.	8/13/91	100%	Random Failure	N/A

An internal fault in the "B" phase main transformer caused a turbine trip/generator load reject resulting in a reactor scram. The transformer fault created an electrical disturbance throughout the normal electrical system, resulting in the loss of five non-safety related uninterruptible power supplies. As a result, the control room lost annunciation and most balance of plant instrumentation. A Site Area Emergency was declared. (LER 91-17)

2.	12/7/91	90%	Equipment Failure	N/A

During performance of the weekly turbine valve cycling surveillance, the turbine stop and combined intermediate valves inadvertently closed resulting in a reactor scram. The most probable cause of the event was a malfunctioning relay in the speed select circuit of the turbine electro-hydraulic control system. (LER 91-22)

	Date	Power Level	Root Cause	Functional Area
3.	12/12/91	55%	Personnel Error	Operations

During the start of a second feedwater pump to support raising plant power, a condensate and feedwater system transient occurred resulting in the loss of both feedwater pumps. The loss of all feedwater to the vessel resulted in a reactor scram on low vessel level. The cause of this event was attributed to poor work practices and mis-communications between operating shift personnel. Specifically, an inadequate number of condensate and condensate booster pumps were running to support operation of a second feedwater pump. (LER 92-23)

4.	1/25/92	65%	Equipment Failure	Maintenance

A manual shutdown was initiated due to excessive leakage from degraded pump seals on feedwater pumps B and C.

IV.C NRC Inspection and Review Activities

Three NRC resident inspectors were assigned to Nine Mile Point during the assessment period. NRC team inspections were conducted in the following areas:

-- Safety related check valve audit performed at Unit 2 during the week of August 5, 1991.

-- Augmented inspection coverage of the Unit 2 site area emergency which occurred on August 13, 1991. The augmented inspection team was supplanted by an incident inspection team.

-- Restart readiness inspection at Unit 2 conducted the week of September 3, 1991 concerning restart following the site area emergency.

-- Electrical distribution system functional inspection conducted at Unit 1 from October 9 through 25, 1991.

-- Augmented inspection coverage from February 22 through 28, 1992, at Unit 1 following the loss of the ultimate heat sink event.

-- Reactive inspection conducted intermittently between March 28 and April 18, 1992, at Unit 1 to assess the effectiveness of NMPC short term corrective actions taken in response to the loss of the ultimate heat sink event.

-- Augmented inspection coverage at Units 1 and 2 between March 24 and 27, to inspect the Unit 2 loss of control room annunciators and subsequent loss of all off-site power.

IV.D Escalated Enforcement Action

An enforcement conference was held on October 17, 1991 to discuss the ability of the Unit 2 standby gas treatment system to perform its containment drawdown function with a secondary containment unit cooler inoperable. A Severity Level IV violation was issued for loss of configuration control on the unit cooler service water values during the markup process.

An enforcement conference was held on February 6, 1992 in NRC Region I to discuss the dropping of two new fuel bundles at Unit 2. A Severity Level IV violation was issued for failure to follow procedural instructions.

Two Severity Level III violations and civil penalties were issued on May 21, 1992 at Unit 1 near the end of the period. One violation concerned the failure of maintenance workers to implement written procedures which resulted in the loss of the ultimate heat sink event. A $75,000.00 civil penalty was issued. The second violation concerned operating the unit with less than the minimum number of operable instrument channels of protective instrumentation, and inadequate corrective actions. A $125,000.00 civil penalty was issued.

IV.E SALP Evaluation Criteria

Licensee performance is assessed in selected functional areas, depending on whether the facility is in a construction or operational phase. Functional areas normally represent areas significant to nuclear safety and the environment. Some functional areas may not be assessed because of little or no licensee activities or lack of meaningful observations. 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 the identification and resolution of technical issues form a safety standpoint;

3. Enforcement history;

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

5. Staffing (including management);

6. Training and qualification effectiveness.

Based upon the SALP Board assessment, each functional area evaluated is classified into one of three performance categories. The definitions of these performance categories are:

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

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

Category 3: Licensee management attention to and involvement in nuclear safety or safeguards activities resulted in an acceptable level of performance; however, because of the NRC's concern that a decrease in performance may approach or reach an unacceptable level, NRC will consider increased levels of inspection effort.

The SALP report may include an appraisal of the performance trend in a functional area for use as a predictive indicator. Licensee performance during the assessment period is examined to determine whether a trend exists. Normally, this performance trend would only be used if both a definite trend is discernable and continuation of the trend would result in a change in performance rating.

The trend, if used, is defined as:

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.