U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Docket No.: 50-220

Report No.: 50-220/89-81

Licensee: Niagara Mohawk Power Corporation

Facility: Nine Mile Point, Unit 1

Location: Scriba, New York

Dates: October 4-6 and 10-20, 1989

Team Manager: James T. Wiggins, Chief
Reactor Projects Branch No. 1
Division of Reactor Projects

Inspectors: William A. Cook, SRI - Nine Mile Point, Units 1 and 2
Richard A. Laura, RI - Nine Mile Point, Units 1 and 2
Robert R. Temps, RI - Nine Mile Point, Units 1 and 2
Richard A. Plasse, RI - FitzPatrick
Tracy E. Walker, Operations Engineer, DRS
Dolores S. Morisseau, RES
Leonard J. Prividy, Senior Reactor Engineer, DRS
Theodore A. Rebelowski, Senior Reactor Engineer, DRS
Thomas F. Dragoun, Senior Radiation Specialist, DRSS
Richard S. Barkley, Reactor Engineer, DRP
Robert E. Martin, NRR
Maureen A. Hunemuller, NRR
David R. Desaulniers, NRR

Approved By: Shown W. Meyer 11-7-89
for Richard J. Conte, Chief (Team Leader)
Boiling Water Reactor Section
Division of Reactor Safety

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The staff of the U.S. Nuclear Regulatory Commission (NRC) conducted an integrated assessment team inspection (IATI) at Nine Mile Point, Unit 1, October 4 through 6 and 10 through 20, 1989. The inspection team reviewed the performance in five functional areas in light of the licensee-specified underlying root causes (URCs) in the Niagara Mohawk Power Corporation (Niagara Mohawk) Restart Action Plan: (1) planning and goal setting, (2) problem solving, (3) organizational culture, (4) standards of performance and self-assessment, and (5) teamwork.

The inspection was performed to ensure that the plan had been instituted and was being effectively implemented. The team assessed five selected functional areas, primarily by observing ongoing activities and interviewing selected individuals involved in those activities. The team interviewed a sample of employees representing all levels within the site organization, both to support the review of each functional area and to assess the organizational culture. The team noted performance trends that had become evident within each URC area since the NRC conducted a special team inspection in early 1989.

Generally, the team concluded that Niagara Mohawk had clearly improved performance related to three URC areas. In the remaining two URC areas, performance was improved over that observed during the special team inspection but continued to be weak. Each area is discussed in the rest of this summary and in greater detail in the report.

Related to the first URC, planning and goal setting, the team noted that upper management levels had instituted a management-by-objectives (MBO) system and had implemented it to varying degrees down to the first-line supervision level (non-union representation). Below this first-line supervision level, the majority of working level personnel had been given the pamphlet on vision, mission, goals, and standards of performance, which was developed by the Nuclear Division in 1989. Employees understood that its contents represented the objective for performance that they should strive to achieve. Working level personnel were generally achieving this objective. Overall, the team concluded that Niagara Mohawk had clearly improved its performance in the area of planning and goal setting, the first URC.

The team continued to note weaknesses in the area of problem solving, the second URC. However, Niagara Mohawk had slightly improved its problem solving performance. The team identified no new technical issues that would affect restart. Multiple procedures existed for the documentation and resolution of problems, and personnel were generally aware of these procedures. Niagara Mohawk was in the midst of completing training in this area. Further, its procedural guidance on reporting problems and analyzing their root causes was

confusing. The guidance did not clearly state practical management expectations for implementing those procedures. However, to the extent that the guidance was understood and used, the techniques for root cause analyses were viable, consistent with current industry techniques, and effective in uncovering root causes. The team noted some evidence of weak corrective actions, such as the problems with inservice testing of safety-related pumps in a particular system. Overall, the team concluded that, in the area of problem solving, the second URC, performance was weak, but improved.

In performance related to the third URC, organizational culture, Niagara Mohawk had made considerable progress. As confirmed by personnel interviews and by observing personnel performance during this inspection, most individuals in Niagara Mohawk's staff accepted the bases for and actions associated with the plan to improve performance. However, one example to the contrary existed in that management was not properly controlling overtime according to technical specification guidelines. Nothwithstanding, the team concluded that Niagara Mohawk had clearly improved its overall performance in the area of organizational culture, the third URC.

The team continued to note weaknesses in the area of standards of performance and self-assessment, the fourth URC. Although Niagara Mohawk had achieved some improvement in this area, as indicated by deficiencies in their performance that they had identified, the team noted a number of other performance deficiencies which indicated that the plant staff did not clearly understand the standards or were not routinely implementing them for a variety of reasons. Individually, each deficiency identified by either Niagara Mohawk or the team was minor in nature; but, collectively, their occurrence this late in the restart process concerned the team. For example, the planning efforts for the reload system and area walkdowns (a new initiative) did not ensure adequate first-line management review and independent review as delineated in the applicable procedure; further, the results of these walkdowns did not meet management expectations. Because the self-assessment program was in the very early stages of implementation, it could not yet be completely relied on to identify deficiencies. Individual departments responsible for implementing this self-assessment program appeared to be struggling with properly balancing routine work with the self-assessment functions absent clear guidance from upper management. In retrospect, Niagara Mohawk's decision to establish the Independent Assessment Group was sound, and it appeared that the group would play a much-needed role for ensuring that effective corrective action would be taken to mitigate the types of performance deficiencies noted during this inspection. Overall, the team concluded that, in the area of standards of performance and self-assessment, the fourth URC, performance was weak, but improved.

Finally, in performance related to the fifth URC, teamwork, the team noted good overall cooperation among departments, and especially observed how well the operations and training departments worked together. From interviews, the team learned that the plant staff felt free to seek clarification regarding supervisory decisions. Overall, the team concluded that Niagara Mohawk had clearly improved its performance in the area of teamwork, the fifth URC.

In summary, the team concluded that the Restart Action Plan was well disseminated and generally understood. However, the degree to which the plan had been implemented varied. The team noted clear improvement in performance related to the areas of planning and goal setting, organizational culture, and teamwork (URCs 1, 3, and 5). The team considered performance in the areas of problem solving and standards of performance and self-assessment weak (URCs 2 and 4), although it noted some signs of improvement. The team detected no fundamental flaws during the inspection to indicate that the Restart Action Plan was inadequate.

1 INTRODUCTION

1.1 Background

In December 1987, Nine Mile Point (NMP), Unit 1, was shut down because of excessive vibration in the feedwater system. During the shutdown to repair damaged feedwater system pumps, valves, and pipe supports, NRC inspectors identified significant programmatic deficiencies in the inservice inspection program. In addition, after reviewing the methods used by Niagara Mohawk Power Corporation (Niagara Mohawk) to control the requalification training program for licensed operators at Unit 1, the staff issued a confirmatory action letter (CAL 88-13) on March 28, 1988. Subsequently, the NRC team reviewed licensed operator knowledge of emergency operating procedures (EOPs), and both the NRC staff and Niagara Mohawk identified additional technical and programmatic deficiencies. As a result of this review, the staff issued CAL 88-17 on July 24, 1988.

CAL 88-17 superseded CAL 88-13 and required Niagara Mohawk to determine and document its determination of the root causes for line management's ineffectiveness in recognizing and resolving problems. In addition, CAL 88-17 required Niagara Mohawk to develop and implement a Restart Action Plan and submit this plan to the NRC staff for review and approval. Also, CAL 88-17 required Niagara Mohawk to provide the NRC staff a written report of its readiness to restart NMP, Unit 1, following a self-assessment of its progress.

Niagara Mohawk formed a special task force to prepare a comprehensive restart plan; the Restart Action Plan (RAP) was submitted to the NRC in accordance with CAL 88-17 on December 22, 1988. The plan identified 5 underlying root causes (URCs) for management's lack of effectiveness and 18 specific technical issues. The plan described the problems, their root causes, and the actions Niagara Mohawk planned to take to correct the problems. After much consultation with the NRC staff, and two major revisions to the plan, Niagara Mohawk produced its RAP that the NRC staff approved in September 1989.

On September 8, 1989, Niagara Mohawk submitted its readiness for restart report (RRR) to the NRC. This report culminated Niagara Mohawk's extensive assessment of its Nuclear Division to determine the effectiveness of the implementation of the corrective actions outlined in the RAP. An NRC team reviewed the adequacy of this self-assessment during the week of September 25, 1989, and concluded that the self-assessment process was acceptable. Niagara Mohawk met with the NRC staff in the NRC Region I office on October 3, 1989, to discuss readiness for restart. As a result of this meeting and the assessment team's findings, and in consultation with the Regional Administrator, William Russell, William Kane, Director, Division of Reactor Projects directed an NRC integrated assessment team to inspect NMP, Unit 1.

The team conducted the inspection October 4 through 6 and 10 through 20, 1989. On October 20, 1989, James Wiggins, Chief, Reactor Projects Branch No. 1, Division of Reactor Projects, and the team presented the team's findings to Lawrence Burkhardt, Executive Vice President - Nuclear Operations and his staff in an exit meeting.

1.2 Scope

In light of the history of NMP, Unit 1, and in response to Niagara Mohawk's request, the NRC staff conducted an integrated assessment team inspection (IATI) at the plant. The inspectors reviewed the RAP with particular emphasis on those URCs Niagara Mohawk had identified: (1) planning and goal setting, (2) problem solving, (3) organizational culture, (4) standards of performance and self-assessment, and (5) teamwork to ensure that the plan was instituted and being effectively implemented. The team assessed the effectiveness of the resolution of the URCs by means of licensee performance in five functional areas: (1) plant operations, (2) radiation protection, (3) maintenance and surveillance, (4) engineering and technical support, and (5) safety assessment and quality verification. The team concentrated on emphasizing the corrective action programs in these five areas. Team members identified the scope of review for each functional area and the criteria against which they would evaluate performance in these areas.

1.3 Methodology

To assess the plant, the team observed activities that supported reload and restart activities and also reviewed procedures and documents for performing those activities. Some members of the team performed augmented shift coverage on October 4 through 6, 1989. Also, the team interviewed a sample of employees representing all levels within the organization to assess the way the organization conducts its affairs, that is, its organizational culture. Within each functional area, team members collated positive and negative findings to reach conclusions that best fit a particular URC area (some overlap was recognized). The team also noted the direction in which performance had moved (performance trends) since the NRC's special team inspection conducted in early 1989.

At the beginning of this inspection, Niagara Mohawk reported those actions remaining to be resolved associated with the URC section of the RAP. Therefore, team members were well aware of those technical issues that were open. The team focused its attention on ensuring that no new technical issues for restart existed that had not been reported to NRC. Also, the team verified that, if a problem arose during the course of the inspection, the team was to understand why it existed, whether Niagara Mohawk knew about the problem, and whether it had taken or planned to take effective corrective action to resolve the problem.

2 SUMMARY OF RESULTS

2.1 Functional Areas

2.1.1 Plant Operations

In the functional area of plant operations, the team found the following strengths and weaknesses:

Strengths

- Operations personnel had been well integrated into the planning and scheduling process.
- Management had improved its attention to the needs and effective utilization of employees, resulting in improved organizational culture.
- Cooperation between the operations and training departments had improved.

Weaknesses

- As indicated by the outcome of the system/area walkdown program, management oversight of this program was poor, and independent review of this new initiative was weak.
- Initial problem solving efforts were weak regarding preparation for requalification examinations, apparently due to poor communications.

2.1.2 Radiological Controls

In the functional area of radiological controls, the team found the following strengths and weaknesses:

Strengths

- Goals were being used by line and upper management as a basis for approving budget and staff resources.
- The majority of the radiological controls staff indicated that problems now get attention and are not ignored or sidetracked.
- Good assessment of radiological work occurred based on supervisory reviews, multi-department team tours, and audits.

Weaknesses

- No personnel exposure goals were specifically stated at the Nuclear Division level to keep exposure as low as reasonably achievable (ALARA).

2.1.3 Maintenance and Surveillance

In the functional area of maintenance and surveillance, the team found the following strengths and weaknesses:

Strengths

- The work control planning team, the cooperation among maintenance department disciplines, and management oversight had improved to the point that they represented notable strengths.

- Within the maintenance department, a substantial respect was evident for complying with procedures and a rigorous attempt was in progress to use the proper procedure-change mechanism to improve procedures before implementing them.

- Considerable improvement was noted in the overall control of the Technical Specification Surveillance Program; however, for this program, a number of problems remained to be solved that involve inadequate procedures.

Weaknesses

- Upper management set a poor example with respect to adhering to procedures when it changed an administrative instruction by means of a memorandum rather than formally changing the instruction.

2.1.4 Engineering and Technical Support

In the functional area of engineering and technical support, the team found the following strengths and weaknesses:

Strengths

- Niagara Mohawk had developed a large site engineering group that was designed to improve technical support to the facility.

- Most site and corporate engineering groups agreed that teamwork had improved except in the planning area, which still needed improvement.

Weaknesses

- Engineering personnel had limited experience with root-cause analysis techniques and with the use of the self-assessment process.

- Although Niagara Mohawk had identified management expectations or requirements in the area of safety evaluations in accordance with 10 CFR 50.59, engineering personnel and contractors were not fully cognizant of what was expected of them.

- Engineering personnel had poor control over their review and approval of work by verbal or telephone communications.

2.1.5 Safety Assessment and Quality Verification

In the functional area of safety assessment and quality verification, the team found the following strengths and weaknesses:

Strengths

- Generally, the entire organization had a heightened awareness of the importance of identifying and effectively resolving problems.

Weaknesses

- The Station Operations Review Committee (SORC) devoted most of its time to technical issues, which left little time to focus on broader safety issues.

- Niagara Mohawk's self-review process did not identify an inadequacy in the nuclear commitment tracking system, a specific corrective action listed in one of the URC areas of the RAP.

- Insufficient or confusing guidance existed in the procedures governing the root-cause analysis process and the system for reporting problems.

2.2 Personnel Interviews

During personnel interviews, the team found the following strengths and weaknesses:

Strengths

- As evidence of improved communications, workers were free to question supervisors and verify their understanding of procedural requirements.

- The relationship between operators and the training staff and the formation of the integrated management team were evidence of improved teamwork.

Weaknesses

- Although the organizational culture had improved, certain individuals had not fully accepted Niagara Mohawk's plan to improve plant performance. Plant management had failed to adequately respond to the overtime issue.

- Interviews with staff and management indicated an inconsistent understanding of the philosophy of procedural adherence. Various members of the staff and certain key managers espoused a view that some policies and procedures should be used as guidance rather than documents to be rigorously followed.

2.3 Underlying Root Causes

The URCs described below were extracted from Section I.2 of the RAP. The short titles are used in this report to identify each URC.

(1) Planning and Goal Setting:

"The management tasks of planning and goal setting have not kept pace with the changing needs of the Nuclear Division and with changes within the nuclear industry."

(2) Problem Solving:

"The process of identifying and resolving issues before they become regulatory concerns was less than adequate in that there was not an integrated or consistent process used to identify, analyze, correct, and assess problems in a timely way."

(3) Organizational Culture:

"Management's technical focus has created organizational culture that diverts attention away from the needs and effective use of employees."

(4) Standards of Performance and Self Assessment:

"Standards of performance have not been defined or described sufficiently for effective assessment, and self-assessments have not been consistent or effective."

(5) Teamwork:

"Lack of effective teamwork within the Nuclear Division and with support organizations is evidenced by lack of coordination, cooperation, and communication in carrying out responsibilities."

3 DETAILS OF INSPECTION

3.1 Functional Areas

3.1.1 Plant Operations

In the operations department, the team interviewed supervisors, licensed and non-licensed operators, nuclear fire fighters, operations support engineers, and reactor analysts. Additionally, the team interviewed system engineers and training department personnel who supported the operations department. The interviews focused on specific issues identified during this inspection and previous NRC inspections. Findings were related to the five underlying root causes (URCs) identified in the Niagara Mohawk Power Corporation (Niagara Mohawk) Restart Action Plan (RAP). The team observed several activities during the inspection: reload system walkdowns, shift briefings and turnovers in the control room, operator rounds, hydrostatic testing of a fire sprinkler system, in-service testing (IST) of the reactor building closed loop cooling (RBCLC) system, a fire detector surveillance test, and operator training sessions.

Using the results of the interviews and observations, the team assessed progress in correcting the five URCs of poor performance defined in the RAP. The team used the standards of performance, which were defined in the pamphlet on vision, mission, goals, and standards of performance, developed by Niagara Mohawk's Nuclear Division in 1989, to gauge the effectiveness of the licensee's corrective actions.

Underlying Root Causes

(1) Planning and Goal Setting

Regarding planning and goal setting, corrective actions appeared to be effective. Operations personnel were aware of and had a good understanding of the Nuclear Division's vision, mission, goals, and standards of performance. Most of the staff recognized that changes were necessary to meet the Nuclear Division's goals.

The staff at all levels of the operations department were involved in planning and prioritizing work activities, which resulted in more realistic and, therefore, more effective scheduling. In the planning process, the staff considered human resources in assigning staff to work activities and in identifying support needed from other departments.

(2) Problem Solving

Problem solving appeared to be generally effective within the operations department, but the team noted some weaknesses in identifying and communicating problems, and in timely correction of these problems. Operations personnel understood the procedure for reporting a problem via the chain of command, but the team observed that problems were not always effectively reported according to this procedure.

For example, ineffective problem identification and resolution occurred regarding preparations for requalification examinations. Specifically, the licensed operators were apprehensive about the upcoming requalification examinations because they were uncertain about the evaluation criteria and concerned about whether they would be adequately prepared for the examinations. Management was aware of these concerns and had taken some actions to alleviate the operators' apprehension. However, management did not determine that their corrective actions had been ineffective and, therefore, the apprehension still existed. Confusion about the scenarios and evaluation criteria used during the completed emergency operating procedure (EOP) evaluations (discussed in Inspection Report 50-220/89-24) had added to the operators' apprehension about the requalification examinations. Supervisors in the department were not fully aware of the operators' confusion and, therefore, this problem was not resolved.

The team observed contrasting attitudes toward problem solving in the operations area. Training department and operations support personnel demonstrated an aggressive attitude toward problem solving, by taking timely corrective action and assessing the results to ensure effectiveness. For example, an operations support engineer committed to adding guidance to the operations department instruction (ODI) that governs EOP usage as soon as he learned that the staff was confused by a step in the drywell flooding procedure (identified during the EOP evaluations).

However, operations department supervisors and plant operators did not always demonstrate the same aggressive attitude. The operations superintendent had known that the operators were confused about the above evaluation of the EOPs for three days before he took any action to eliminate the confusion; the operations training supervisor, however, was prepared to correct the situation as soon as it was brought to his attention.

Also, plant operators did not always appear to be sufficiently alert to identify problems in the plant. The team observed operators who were not always cognizant of radiological conditions (e.g., the location of hot spots) and industrial safety hazards such as areas that required safety glasses and darkened areas in the plant.

The team identified positive and negative examples of managing overtime in the operations department. A blanket authorization for exceeding the "72 hours in a 7-day period" overtime restriction was used from February 1988 until approximately August 1989. The supervisors in the department were aware of the blanket authorization, but had not recognized it as a problem (or regulatory concern). As soon as the general superintendent and station superintendent became aware of the situation in August 1989, they recognized that a blanket authorization for deviating from the technical specification overtime restrictions was both a problem and a regulatory concern, and took immediate corrective action. Their actions represented good problem identification and resolution.

However, during the inspection, the team identified an additional problem in the overtime tracking procedure, which had allowed individuals to exceed the technical specification overtime guidelines over rolling seven day periods without obtaining the required authorization. Niagara Mohawk committed to review all departments' methods of overtime control and tracking. The problem identified in the overtime tracking system and concerns about upper management's review of individual overtime usage are unresolved items at this time. (UNR 220/89-81-01)

(3) Organizational Culture

Niagara Mohawk had made progress in moving management focus toward employee needs rather than technical issues, but there was evidence that the changes in organizational culture had not yet fully met the objectives of the RAP. Improvements were still needed in the areas of management and supervision, timeliness, and communications.

The team noted improvements in management attention to the needs and effective utilization of employees. Organizational changes to include reactor analysts, fire fighters, and operations support engineers in the operations department resulted in improved teamwork and more effective utilization of resources. The department was not as isolated from the other departments as it was before these organizational changes. Career development was a stated goal of the operations department, and plans were being made to establish rotational programs for operators. Most operators stated that management was more visible in the plant and accessible to employees. The team noted some managers who were soliciting input from employees for making improvements and solving problems.

It appeared that the natural tension between human resource needs and productivity concerns existed, but in some cases, employee needs had not always been adequately considered along with the technical concerns of managing plant operations. The policy of blanket overtime approval for the operations department to routinely exceed the technical specification overtime guidelines (discussed above) to accommodate the heavy workload reflected this. Senior station management took action to address the overtime issue but concerns for the amount of overtime being worked still existed among members of the staff.

(4) Performance Standards and Self-Assessment

The team determined that operations department personnel on all levels were familiar with the standards of performance defined in the pamphlet disseminated in 1989 that describes the Niagara Mohawk Nuclear Division's vision, mission, goals, and standards of performance. However, most individuals were not aware of a change in standards specific to their job function and were not certain what standards were used by their supervisors to evaluate them. This finding was consistent with the actions yet needed and committed to in the RAP; that is, development and use of more specific standards of performance at the department level were long-term strategies aimed at correcting URC 4.

The team reviewed ODI 1.07, "Operations Self-Assessment Program," and documentation of the assessments that had been performed in accordance with this procedure since it was developed in March 1989. Attachment 3 to ODI 1.07 met the RAP objective of incorporating the standards of performance into the self-assessment process, but it specified that ODI 1.07 was to be used only when assessing control room activities. Attachment 1 to ODI 1.07, which did not contain specific performance standards, was used for all other self-assessments. The team considered it a weakness that Attachment 3 to ODI 1.07 was not used for activities outside the control room. Further, the team questioned why ODI 1.07 was not being used to assess operations support personnel, fire fighters, and reactor analysts, as these groups were also part of the operations department.

The self-assessment procedure specified that each activity be assessed at least once each quarter; however, the team found that no assessments were completed from April to August 1989 and only a few of the specified activities had been observed. The majority of the assessments performed in accordance with ODI 1.07 were performed by the operations superintendent, and many were assessments of training activities rather than plant activities. Further, this assessment tool would be more effective if a more formalized method for the tracking and scheduling of assessments and for tracking deficiencies identified from the assessment process was implemented. Also, the infrequent use of the senior shift supervisors and the assistant senior shift supervisors in performing assessments impaired the effectiveness of the process.

For plant operations as a whole (i.e., not restricted to just the operations department), the team noted a deficiency in management effectiveness with respect to the reactor fuel reload systems walkdown. As a result of NRC review of the initial walkdowns (described in Inspection Reports 50-220/89-07 and 89-08), concerns were identified as to the manner in which the walkdowns were performed. The team discovered that the senior managers' understanding of the intent and methodology of the system walkdowns was different from that of the line managers responsible for implementing the program. Additionally, the line managers responsible for implementing the system walkdown program (a new program never implemented before at Unit 1) performed no oversight in the field while walkdowns were in progress, nor did they attempt to independently assess the accuracy of the results that were obtained. Rather, these line managers concluded that because deficiencies were being reported from the field the program was being implemented properly. The team found that senior station managers did not properly communicate their expectations to the line managers through the procedures governing the program, that the line managers did not monitor or observe the work, and that the results were not adequately assessed. These walkdowns were subsequently reperformed to support reload activities using an upgraded procedure. Niagara Mohawk committed to take appropriate corrective actions on its performance deficiencies noted during the reload system and area walkdowns prior to its restart system and area walkdowns. The acceptability of these corrective actions is an unresolved item (220/89-81-02).

The team noted an additional problem during the second set of reload system walkdowns. During walkdown of the emergency diesel generator (EDG) system, the first system to be walked-down using the revised procedure, the team noted that a prerequisite that required deficiency tags to be hung prior to the walkdown was not being followed. The team brought this matter to the attention of senior management the following day, and a procedure change was issued two days later to delete this prerequisite. In reviewing this issue, the team discovered that only one group had failed to perform this prerequisite, and then only on the first day of the walkdowns. Therefore, the deletion of the prerequisite appeared to be an overreaction. Further, it appeared that this group was confused as to the applicability of the procedure and thought that it was ambiguous in nature. However, this group did not stop the walkdown when confusion existed and a step could not be performed as written. When questioned about this prerequisite, a senior manager indicated that hanging the deficiency tags during the walkdown was considered optional. The team took issue with the concept that procedure prerequisites were optional steps in procedures and found that this apparent philosophy ran counter to NMPC's stated policy on procedure adherence.

(5) Teamwork

Through observation of operations activities and by interviews, the team ascertained that progress had been made in the promotion of a teamwork philosophy in the operations department.

In those activities which the team observed, it was apparent that the different work groups involved were supporting each other in a timely way. Operations department personnel provided support for some activities and conducted others. Involvement by radiation protection, instrumentation and controls (I&C), the fire department, and security personnel, as well as other departments, was provided in a timely manner. The team learned through interviews that most individuals felt that teamwork had improved over the last two years. These individuals sensed that the different groups now supported one another in the interest of getting the unit safely back in operation.

The team noted several positive examples of promotion of the teambuilding philosophy. Examples included the bringing together of several departments at preshift briefings in the control room and the emphasis on teamwork in the Power Ascension Test Program (PATP) training. Additionally, including personnel from various groups within operations into the planning and scheduling process was an example of the promotion of teamwork.

Positive efforts had been made toward improving teambuilding skills by selected personnel from all levels participating in teambuilding workshops. The objective of improving teambuilding and coaching skills was to support implementation of the Nuclear Division's standards of performance, but weaknesses in intra-departmental communications could hinder the effective implementation of these standards. The team observed that accurate information was not always

shared vertically in a timely manner. The "Ops News" was a valuable communications tool, but it did not always appear to have been used effectively. According to the operators, changes to information that was disseminated via the "Ops News" were not always communicated down the chain of command. In the case of the results of the EOP evaluation, inaccurate information was communicated via the "Ops News," which resulted in misconceptions on the part of the operators. Because of poor communications up the chain of command, operations supervisors were not aware of the extent of these misconceptions.

According to the operators, licensed operator training improved, both in content and in the training department's receptiveness to operator needs. When problems arose with training, the operations department communicated them to the training department, which resolved them in a timely manner. The operations department appeared to be in full charge of its training programs in all areas. Reactor analysts and fire fighters, as well as licensed operators, were involved in the development of their training programs.

Conclusions

In the area of plant operations, significant progress had been made toward meeting the objectives of the RAP in correcting the five underlying root causes. Specifically, progress was noted regarding the integration of operations personnel into planning, the improved culture within operations, and the good cooperation between operators and training.

In several areas more progress was needed to fully meet the objectives of the RAP. Intra-departmental communications within the operations department needed improvement to promote effective problem identification and resolution and to enhance management focus on employee needs, e.g., overtime control and requalification examination concerns. A viable self-assessment process had been developed, but enhancements were needed to increase the effectiveness of the process. Increased management oversight of new program initiatives, such as the system walkdowns, was required to ensure that the Nuclear Division's standards of performance were adhered to, effective results were achieved, and the job was done right the first time.

3.1.2 Radiation Protection

The team reviewed the current status of corrective actions taken by the Unit 1 radiation protection (RP) department to resolve the management weaknesses identified in the Restart Action Plan (RAP). This review focused on in-plant health physics programs as applied to Unit 1. Since most of the radiologically challenging outage work was already completed, the review consisted of formal and informal interviews with onsite and corporate supervisors and technicians, and observations of personnel interactions in the plant. In addition, the team assessed the contribution of the training programs toward implementing the RAP.

Underlying Root Causes

(1) Planning and Goal Setting

Each supervisor in the RP department had a formally documented set of goals for 1989 that were derived from Nuclear Division goals, i.e., a management-by-objectives (MBO) approach based on the goals. Because goals were tailored to specific job functions, they appropriately differed for each supervisor.

The team noted that supervisors were using the goals effectively to initiate and justify programmatic improvements. Requests for equipment, increases in approved staffing levels, and changes to procedures and policies were proposed and reviewed based on these goals. This use of goals by line and upper management was considered a strength.

An RP technician was assigned to the work control center to ensure that RWPs were promptly issued for daily work. RWPs were prepared in parallel with other work preparation to avoid delaying the start of the job. Such planning and coordination benefitted the work group and the RP personnel responsible for covering the job.

Weaknesses were also noted. The division goals had not been finalized until April 1989. This effectively limited their usefulness to the second half of 1989. The Executive Vice President stated that in the future, annual goals would be issued in a timely manner.

There was often no clear relationship between the RP department goals and the division goals. For example, it was difficult to assess which RP goals were designed to eliminate Category 3 ratings in the systematic assessment of licensee performance (SALP) program and to improve the station's SALP average. Also, the team noted the absence of a stated numerical goal at the division level for total personnel radiation exposure, that is, a goal to maintain exposure to radioactivity as low as reasonably achievable (ALARA). This lack of a stated numerical goal for the division could diminish the station's efforts to reduce exposures and meet its established exposure goal. The Executive Vice President stated that Niagara Mohawk would consider providing higher visibility for a division ALARA goal.

The station ALARA goal for Unit 1 for 1989 was not challenging, but despite this, it appeared that the goal will probably be exceeded by about 10 percent at year end. However, the ALARA group at the site had a new supervisor and new staff. This new group appeared to be very competent and aggressive, and had initiated challenging projects to reduce exposures.

(2) Problem Solving

Efforts within the RP department to identify and resolve issues before they became a regulatory concern were very good. The radiological support group analyzed reported radiological problems according to station procedures. Problems such as skin contaminations, lost dosimetry, and radiation work permit (RWP) noncompliances were analyzed to determine causal factors. A monthly report was issued containing computer-generated charts and graphs. The report clearly showed (a) which department was experiencing the most problems and (b) the causal factor occurring most often. The report was distributed to all departments and all levels of management for information and action.

The RP manager reviewed radiological problems reported at other nuclear plants for applicability to Nine Mile Point and determined appropriate action. Sources of information included NRC, Institute of Nuclear Power Operations (INPO), Edison Electric Institute (EEI), and RP workshops sponsored by industry groups. The continuing training program for RP technicians held each five weeks was frequently used to relay the appropriate information.

Another source of information was the station staff, particularly at the working level. Those employees believed that all problems reported to management would be reviewed and resolved. Such an atmosphere encouraged workers to report problems. Most personnel stated that this situation had not existed in the past and had improved greatly since the RAP program was instituted.

The team noted that state-of-the-art corrective actions were not always implemented. For example, the team found instances where drip pans placed under leaking valves were drained through tubing that was snaked to the nearest floor drain. The team judged this approach adequate but less desirable than alternate approaches found in the industry such as a leak prevention program using live-loaded valve packing and draining the tubing to special polyethylene containers kept inside the contaminated area.

(3) Organizational Culture

The RP department paid adequate attention to employee needs and used human resources adequately. The team found Niagara Mohawk's performance improved with respect to this URC.

(4) Performance Standards and Self-Assessment

As part of the program for instituting specific goals for each RP supervisor, personnel were held accountable for individual performance relative to the goals. The progress of each supervisor was to be periodically and systematically reviewed by the next tier of management. Some supervisors had developed a matrix linking each of their current projects to a specific goal. Annually, each supervisor was to be evaluated against a personal "Planned Performance Worksheet." Niagara Mohawk had used these worksheets for some time; the new worksheets were better because they included specific goals. The worksheet allowed the supervisor to assess his or her own progress during the year.

Auditing had also improved, particularly in the corporate health physics (HP) audits and the audits sponsored by the Safety Review and Audit Board (SRAB). The corporate HP audits were performed quarterly by the corporate staff and focused on suspected problem areas identified by station personnel. The SRAB audits used expert outside consultants as members of a team conducting performance-based reviews of RP programs. These two efforts complemented each other and provided upper management with a good assessment of RP program performance.

Supervisors were spending more time in the plant overseeing work and becoming more familiar with problems. Weekly formal tours were specified by the RP department, and problems were being documented and resolved.

The team found that Niagara Mohawk's efforts regarding self-assessment of radiological controls performance was a strength.

(5) Teamwork

Coordination, cooperation, and communication among RP and other station personnel were found to be generally good during daily activities. Personnel interviewed indicated a good sense of team spirit and high morale. Interactions during the weekly plant team inspections were good.

Weekly team tours were conducted by RP supervisors; several departments send representatives along. A checkoff sheet was provided for training team members on observing radiological work practices. Working with the team provided valuable training and insight. Various cross-disciplinary problems had been found and documented.

Some minor friction remained between RP and operations department personnel. Although not observed by the team, several people who were interviewed indicated that operators felt constrained by RP requirements during tours and equipment inspections. For example, operators saw the requirement for issuing an RWP before climbing more than 6 feet from the floor as an unnecessary delay. RP management was aware of these residual problems and was attempting to resolve them.

Conclusions

The RP department implemented the management and organizational effectiveness improvements identified in the RAP. The team determined that changes implemented in the Unit 1 RP organization adequately resolved the RAP concerns. Since most changes had been in place for only a few months, the team could not assess the degree to which the changes would be permanent and lasting. Although status was judged to be adequate in all areas, corrective actions were still in progress, and refinements were still being made. The methodology for implementing the five root-cause improvements was good, and the current status of progress was adequate.

3.1.3. Maintenance and Surveillance

The inspection in the functional area of maintenance and surveillance focused on the improvements undertaken in response to the Restart Action Plan to determine the licensee's effectiveness in developing, scheduling, and controlling the corrective and preventive maintenance and periodic surveillance test (ST) programs. The team analyzed related administrative procedures, the surveillance test matrix, and procedure generation methods. The team observed selected tests, and reviewed corrective work requests and ST procedures to ensure compliance with written procedures and Technical Specifications. Operations, maintenance, and engineering personnel were monitored in the field during ST performance. The team observed personnel training to ensure that trainers were qualified for the tasks being performed. The team also reviewed ST acceptance criteria to ensure TS requirements were being met, and assessed the compliance with procedures and the quality of the procedures. Further, the team reviewed utilization of the temporary change notice process, which included verifying that the required supervisory reviews were completed.

Underlying Root Causes

(1) Planning and Goal Setting

In the area of maintenance, the team noted a strong, knowledgeable planning and outage management organization that scheduled all phases of work, that scheduled and assigned staff to perform tasks, that directed the use of material, and that assigned priorities to the tasks. This organization contributed positively to improved plant performance. Further, Niagara Mohawk had established performance indicators, a new method for monitoring maintenance requests (MRs), and a system for prioritizing MRs, that permitted early completion of higher priority MRs, consistent with the defined goals for restart.

One weakness found was the relatively large backlog of MRs. During this inspection, the backlog for G and F MRs (before reload and before restart) had increased, possibly as a result of an inefficient work control process. The present backlog of approximately 1500 MRs appeared to require additional manpower and management attention to reduce it to a manageable number.

In the surveillance area, Niagara Mohawk performed a Quality Assurance (QA) audit of the surveillance program because of missed surveillance tests at Unit 2 during startup and initial commercial operations. The auditors determined that the administrative controls being used for Unit 1 did not provide enough detail to adequately control the ST program. RAP items 1.2.3 and 1.2.4 identified the need to develop a controlled and consolidated technical specification matrix and administrative controls to define program responsibilities and guidelines to allow effective implementation of the (ST) test program.

The development of the Unit 1 (ST) test matrix is complete. The team reviewed the matrix and identified no deficiencies. The generation of the matrix was a team effort under the guidance of Nuclear Regulatory Compliance Group with inputs from operations, I&C, electrical and mechanical maintenance, fire protection, radiation protection, reactor analysts, and chemistry departments. The effectiveness of this review resulted in the identification of an inadequate technical specification surveillance test documented in LER 89-07.

To ensure that the technical specification matrix remained technically correct, Niagara Mohawk developed NRCP-8, Procedure for Technical Review. This procedure is still in draft form, but is to become effective in the near future. This procedure includes a checklist for the review of procedure changes, modifications, and technical specification amendments for their effect on the ST matrix. It appeared the review will keep the matrix technically accurate when affected by changes to the station.

Nuclear Regulatory Compliance Procedure S-NRCP-5, Surveillance and Preventive Maintenance Program, established the administrative controls for implementing the ST and preventive maintenance (PM) program. The Regulatory Compliance Group had overall responsibility for the ST/PM program and the test matrix, and for ensuring regulatory requirements are met. The tracking system was a computerized database of ST/PM line items from the test matrix. This new system was still being installed, but the licensee plans for the system to become preoperational in early November. At that time, all ST performance will be scheduled from the system. The PM data will still be the responsibility of the individual departments because it is not yet loaded into the new system. Each department will load its PM schedule into the system individually. The environmental qualification PM schedule will be loaded before restart with the rest of the PM schedule being loaded by March 1990. Once a PM database is loaded and verified, the Regulatory Compliance Group will take over responsibility from the individual department.

After the computerized system is tested and is found to operate satisfactorily, the Work Control Group will coordinate the scheduling of STs and PMs for the various departments and will update the database. This group will update the database from information provided by each department on feedback sheets.

It appears this new system can be an effective tool in controlling ST/PM performance if the system is updated (adequate feedback is received) and properly monitored by the Regulatory Compliance Group. Especially useful is the ability to query the database for ST status prior to a mode change. The team could not determine the effectiveness of this system because it was not operating at the time of the inspection.

(2) Problem Solving

During team observations of repairs to a Ingersol Rand instrument (Ingersol Rand Access 002321366) air compressor, two similar, but different revisions of a vendor manual were found to be in use. Investigation of this concern revealed that one of the vendor manuals (the original), was previously reported lost and that when it was found, it was not properly reported to document control and subsequent updates were not made to it. The repairs were not affected by the use of these manuals. However, this event revealed a weakness in the vendor manual program as performed under the Nuclear Records Management Instructions Procedure No. NRMI-507, "Control of Station Manuals," which was also previously identified in the NRC STI report. Niagara Mohawk committed to review its vendor manual program to ensure that all controlled manuals were being properly updated. (UNR 50-220/89-81-03)

Every week the Work Control Group will distribute a projected summary of the upcoming ST and PM tests scheduled to be performed by each department. If the Work Control Group does not receive feedback from a department that it performed the required test, the Director of Nuclear Regulatory Compliance will issue an Overdue Surveillance Report to that department in accordance with Station General Order SGO-89-01. The first time a test was more than 15 percent overdue, the plant superintendent had to authorized its performance. The second consecutive time the test is more than 15 percent overdue, the General Superintendent must authorize that performance. It appeared that this program will be effective in notifying management of testing problems before they are more than 25 percent overdue, which is when they become a regulatory concern.

Per Administrative Procedure 2.0, procedures are reviewed every two years, and, in addition, a 10 percent sample of the most complex procedures, consisting of instrument channel functional tests, are reviewed. The intent of these reviews was to perform a 10 percent sample. Because errors were found in this sample, Niagara Mohawk is presently completing a 100 percent review of instrument channel functional test procedures. Upon review of the findings documented in the Surveillance Verification Report of August 18, 1989, technical specification surveillance procedure inadequacies were identified, including incorrect frequencies, portions of systems that were not tested, and parts of technical specification requirements that were not met. The NRC was being informed of these findings in an LER supplement.

The Nuclear Regulatory Compliance Group had a long-term plan to perform a technical review of technical specification surveillance procedures not previously addressed by its channel function test verifications to ensure that procedures were technically adequate and consistent with technical requirements. Draft procedure, NRC1-4 Surveillance Test Compliance Review, was to be used for this review. Based on the procedure inadequacies identified by the ST reviews to date, the team was concerned that the adequacy of the surveillance procedures before restart.

To address this concern, Niagara Mohawk committed to review a sample of technical specification surveillance procedures that were not reviewed under the channel function test verification program. This review would include a spectrum of STs including those not associated with instrument logic systems. (UNR 50-220/89-81-04)

The team noted a concern about a surveillance procedure that directed exercising an Agastat timer relay if the "as-found" relay timer was found to be out of specification. This direction amounted to preconditioning the system to meet the surveillance test acceptance criterion. This practice would prevent the test results from accurately identifying as found deficient conditions and would impair the ability to identify performance problems with this relay. The team verified the procedure was changed to delete the timer preconditioning. In discussion with the maintenance superintendent the team learned that no other procedures were known to exist with any system preconditioning before testing. To further verify that system preconditioning does not exist, the site maintenance superintendent stated that he planned to verify during procedure technical reviews that preconditioning does not exist.

(3) Organizational Culture

All supervisors and technicians that the team contacted endorsed the present open communication that establish good work practices and policies. The performance work sheets for management in the maintenance area appeared to define clear goals and responsibilities for management of maintenance and outages. The open communication and clear definition of goals are both strengths.

The policies and procedures of the standards of performance state that procedures are to be followed, and, if ineffective, the procedure is to be reported for review, clarification, and possible revision. In the previous Systematic Assessment of Licensee Performance (SALP), maintenance procedures were criticized as being poor quality. The licensee established the Maintenance Support Group to improve the quality of the maintenance department procedures, which consist of I&C, electrical maintenance, and mechanical maintenance procedures. This group has 38 procedure writers. The maintenance support supervisor has determined that this staff is adequate to handle the procedure workload necessary to support the maintenance department. This is an example of how management committed the necessary resources to achieve procedure improvements consistent with the Policies and Procedure Guidelines.

(4) Performance Standards and Self-Assessment

The self-evaluation of the backlog of MRs was identified by the team as a strength.

A weakness that the team identified was that the plant staff did not perform the monthly electrical preventive maintenance procedure N1-EPM-GEN-M178, "Monthly Records." The team noted heavy accumulation of dust on the inlet and outlet motor screens on a core spray topping pump motor. A discussion with the licensee revealed that the licensee choose not to continue inspection of approximately 70 motors during the extended shutdown of the plant. The team could not identify a formal justification for suspending performance of this procedure. The licensee's immediate corrective action was to examine and clean the core spray topping pump motor. Further, the licensee agreed to evaluate the conditions of all motors listed in the above described preventive maintenance procedure to determine whether they degraded over the time of the shutdown. (UNR 50-220/89-81-05)

While observing the test of the relief valves to be used in the core spray system, the team was concerned about the safety of the hydraulic test stand. The test stand consisted of a variety of brass, cooper, steel and plastic tubing. There appeared that no engineering or safety review had been performed on the design and use of this test stand. The licensee suspended use of this test device until an engineering review of the system and its components could certify that the design and its materials were appropriate. In addition, Niagara Mohawk intends to survey the plant for similar cases of uncertified test gear.

The team observed personnel performing surveillance testing in the field who were professional and qualified to perform the assigned tasks. Personnel maintained a questioning attitude and when a procedure was unclear or incorrect, procedure performance was stopped until clarification or a revision was received. Further, a couple of procedures were delayed owing to temporary changes required to correct the procedures, which is evidence that personnel review procedures before performing them. The team saw management supervision in the field monitoring testing progress. Although the testing workload was minimal during the inspection, it appeared to the team that personnel followed the standard of performance guidelines and were intent on performing a good quality job.

Effective August 1, 1989, the general superintendent established a Site Procedures Writer's Guide, AI-1.0. This site initiative was developed to provide procedure format uniformity for the station. According to AI-1.0, this guide supersedes all other department writer's guides. The licensee instructed that procedures developed on or after the effective date of this procedure must comply with AI-1.0. Contrary to this instruction, other departments continued to use department, rather than the site, writer's guides. Specifically, the operations department continued to use N1-OSI-8, Operator Surveillance Test Procedures Writer's Guide. On October 12, 1989, the general superintendent allowed exemptions to utilization of the AI-1.0 guide if the procedure was required to support the outage, ST/PM schedule, or commitments. Authorization for these exemptions was accomplished by a memorandum which suspended the implementation

date of the procedure under certain circumstances. The team questioned why a change to the writer's guide had not been used to implement this revision to the program, which states, in part, that "all policies and procedures are fully adhered to and enforced in a consistent manner regardless of the person's position or level within the organization." The team's concern about these exemptions is that they should have been authorized by a procedure change rather than by a memorandum. Authorization by a means other than a change to a procedure sets a bad precedent and appeared to be contrary to the Standards of Performance Guidelines. Licensee senior management agreed with this concern.

(5) Teamwork

The team observed good interdepartmental teamwork in the testing of MG Set No. 162. Approximately six departments: electrical maintenance, I&C maintenance, operations, engineering, site engineers, and vendors were involved. An attitude of "let's get the job done right" was prevalent in all departments.

The team saw evidence of teamwork while reviewing the development of the Unit 1 ST Matrix. Field personnel understood the teamwork concept and they initiated feedback to appropriate departments when improvements were recognized. This is evident by the use of SUP-4 forms for identifying improvements to procedures, and SUP-2 forms for identifying and resolving problems associated with the station.

Conclusion

The inspection team concluded that the initiatives and program improvements in in the maintenance/surveillance area indicated satisfactory implementation of the RAP, overall, although further improvements in problem solving and performance standard/self-assessment were warranted.

3.1.4 Engineering and Technical Support

The team reviewed the engineering and technical support activities of the Nuclear Division at the Nine Mile Point site and at the Niagara Mohawk corporate office in Salina Meadows, New York. The inspection was performed to verify the progress made by Niagara Mohawk toward resolving the five underlying root causes of the management deficiencies noted in the Restart Action Plan (RAP). The team interviewed selected managers and employees of Niagara Mohawk and its contractors, reviewed documents related to the resolution of outstanding technical issues and the observed work activities in progress.

The team reviewed the following items:

- the engineering organizational structure, including current and projected staffing levels
- site engineering functions, responsibilities, communications, and working interfaces

- technical support department activities, with emphasis on the newly formed system engineering group, operational events assessment (OEA), and the independent safety engineering group (ISEG)
- engineering work backlog and management
- engineering activities with respect to modifications
- engineering work toward resolving RAP specific technical issues 1, 14, 17, and 18
- systems walkdowns and witnessing of equipment testing in support of the resolution of various technical issues
- quality assurance oversight activities of the engineering department
- engineering personnel training

The results of the inspection are documented below as they address the five underlying root causes identified in the RAP.

Underlying Root Causes

(1) Planning and Goal Setting.

Generally, the team observed that all groups planned and set goals, and that planning for outages and tracking work had improved. Also, the team noted strong management support for a uniform priority scheduling system to improve work planning. This effort is anticipated to be complete by March 1990 and is the responsibility of the nuclear engineering and licensing (NE&L) department. The initial results of a Niagara Mohawk employee survey stated that planning was perceived to be the area of NE&L requiring the most improvement.

Further, the team noted an issue which indicated that planning could be improved. Specifically, the team reviewed the development, testing, and verification of a hydraulic model for the reactor building closed loop cooling (RBCLC) system.

Niagara Mohawk was handling planning for this model as a "high risk" critical path item because of its potential impact on plant restart. Accordingly, it seemed appropriate to define some specific decision points needed for planning this significant work effort. However, the only planning information the team noted was a description of the 2-week work effort required to install instrumentation for the RBCLC pump testing and any associated modifications.

In the area of goal setting, the goals of the NE&L organization were clearly presented to all NE&L employees and responsibility for achieving each of these goals was specifically assigned to NE&L managers. The team reviewed these goals and determined that they embodied the intent of the Nuclear Division's standards of performance as well as the elements of the Nuclear Improvement Program (NIP) for which NE&L was responsible.

The team discussed the outage management organization with the outage manager and reviewed the licensee's restart panel assessment report on the outage management organization. The team noted that substantial resources and management attention had been devoted to the development of a formal outage management organization overseeing such outage activities as identifying work scope, planning and prioritizing, scheduling, and verifying work completion. The team reviewed the weekly integrated restart schedule for Unit 1, daily outage summary sheets, Temporary Procedure No. N1-88-6.0 ("Restart Requirements for Core Reloading"), the outage management organization chart, staffing levels, and the performance monitoring program for Unit 1 (used to trend outage performance). Overall, the team agreed with the assessment of the licensee's restart panel that substantial progress had been made in developing an outage management organization that would ensure work activities were properly prioritized, scheduled, tracked, and closed out.

(2) Problem Solving

The team reviewed the area of problem solving in the NE&L organization and noted that although slight improvement in this area was evident, several examples of poor performance indicated that weaknesses still exist. Examples of improvements and poor performance are discussed below.

One indication of improvement was identified based on an interview with the Vice President-Nuclear Engineering and Licensing who stated that the NIP and RAP have provided a way to systematically resolve problems and evaluate performance. Although previous efforts were made to achieve these goals, the NIP and the RAP have received far greater management support, and implementation was closely evaluated and verified for effectiveness. The engineering organization was strengthened by the clearer assignment of responsibilities in the origanization. The Vice President also stated that one of the most significant improvements that occurred in the engineering organization was the development of a large site engineering group that was responsible for selected modifications, materials engineering, in-service inspection/in-service testing (ISI/IST) and the Independent Safety Engineering Group. Feedback from Nuclear Division employees at the town hall meetings in June 1989 indicated that the site organization had significantly fewer concerns regarding engineering support than at previous times. In addition, inclusion of the quality assurance (QA) organization in the Nuclear Division in March 1989 has improved the ability of NE&L to solve problems identified by the QA department. Also, the operational experience assessment (OEA) group was making steady progress in reducing the backlog of various industry and NRC notifications to a reasonable level and disseminating the appropriate information to plant working groups.

The team reviewed the training department's program for improving the problem solving skills of engineers; these skills were identified as deficient by NRC Special Team Inspection 50-220/89-200. The team interviewed the Assistant Superintendent-Technical Training concerning the training program in place as well as planned improvements. The training department, in conjunction with NE&L, developed an NE&L critical needs training list in the early part of 1989 and has been providing training on the 13 specific training areas on the list since May of this year. In addition, the training department was developing a formal training program for engineers to be implemented by August 1990.

Niagara Mohawk has made noteworthy changes in the development of an Independent Safety Engineering Group (ISEG) for Unit 1. The team reviewed the activities of the recently formed group for Unit 1 as well as the overall ISEG function at Nine Mile Point. The ISEG group was organized as a part of the site engineering group and reports to the site engineering manager. The group dedicated five positions to Unit 1 activities (two of these positions were filled). The ISEG group reviewed safety significant plant events as well as industry and NRC correspondence that it deemed safety-significant. The group was well trained in the Kepnor-Tregoe and Institute of Nuclear Power Operations-Human Performance Evaluation System (INPO-HPES) root-cause analysis techniques and had used each of the techniques frequently.

The team reviewed several ISEG reports and also observed a root cause evaluation presentation on a report governing multiple failures of the main steam line radiation monitors at Unit 1 as well as IST deficiencies. The reports and the evaluations were thoroughly and professionally presented. Overall, the ISEG group for Unit 1 appeared focused, and technically strong, and was receiving adequate management support.

The team discussed the root cause analysis program with the root-cause program director, who reports to the Manager-Nuclear Technology in the corporate office. The director outlined the program plan for implementing a Nuclear Division-wide root-cause evaluation program and trending the results of the program as well as the development and/or refinement of trending programs for equipment, personnel, and programmatic performance. The program plan was detailed and extensive, and the manpower committed to the program demonstrated substantial management support for the program. A root-cause analysis procedure was developed and training was provided on the Kepnor-Tregoe and the Human Performance Evaluation System (HPES) root cause evaluation techniques. However, use of these techniques on specific problems has been limited because of the short time the program has been in effect. Thus, the team could not assess the long-term acceptance and use of these techniques.

On October 10, 1989, the team observed a root cause evaluation of the design deficiencies with the modification package for the 125-V DC system. The evaluation was conducted by a design engineering manager as well as by employees directly involved with the project. The evaluation was performed using the

INPO-HPES. Overall, the participants were well prepared for the meeting, self-critical, and willing to express their opinions. Their knowledge of the process was good, given their limited experience using the process. Subsequently, the team observed a meeting on October 12, 1989, concerning the present status of the 125-V DC issue. The team observed that the full scope of the problem was clearly addressed with clear assignments of responsibility among the participants.

The team reviewed a root cause analysis on the multiple failures experienced with the main steam line logarithmic radiation monitor as documented in a site engineering interim report dated March 23, 1989. The team found that report thorough and informative, and effective in detailing necessary corrective actions.

During the review of RAP Specific Issue 17, "In-service Testing (IST)," the team noted that problem solving had improved. Specifically, the technical content of the IST program was good and the implementing procedures were considered to be thoroughly prepared and responsive to industry initiatives in the pump and valve testing area. However, regarding the implementation of the IST program, the valve testing program was proceeding as planned, but a pump testing deficiency identified by the team indicated that a weakness existed in the licensee's ability to identify equipment problems through the IST program. Specifically, while witnessing IST activities on October 16, 1989, for the RBCLC pumps per Procedure No. N1-ST-V7, the team noted that the vibration measurement pickup device was placed on the inboard mechanical seal housing in lieu of installing it on the inboard bearing housing as required by Subsection IWP of Section XI of the ASME Code. Consequently, the vibration data obtained during this test and, most probably, the previous reference value vibration data, were not obtained in accordance with the ASME Code, resulting in invalid testing. This problem was exacerbated by the fact that this manner of testing may have been conducted similarly during the previous tests of the RBCLC pumps. Also, other pump testing may have been similarly affected. Niagara Mohawk initiated a problem analysis to provide a comprehensive root cause analysis and enable subsequent corrective actions. The NRC review of the use of improper vibration data will be completed during a future inspection. (UNR 50-220/89-81-06)

The team also identified concerns with problem solving based on ongoing evaluations of the reactor building emergency ventilation (RBEV) system. Specifically, in NRC Inspection Reports 50-220/89-07 and 08, the NRC resident inspectors had raised design issues concerning the RBEV, some of which related to 1981 modifications and the associated safety evaluations. When Niagara Mohawk engineering personnel addressed these issues, the resident inspectors found the initial responses to be unacceptable. Further, the team walked down the RBEV system and found that insulation on the charcoal filter housing had been removed during modifications and had not been replaced. The missing insulation was an example of poor problem identification as numerous Niagara Mohawk operators and engineering personnel had inspected it recently. The RBEV design issues will be addressed via the resident inspection reports.

(3) Organizational Culture

The team saw a definite improvement in the area of resource utilization and the organizational culture.

The team discussed resource utilization and organizational culture with the Vice President-Nuclear Engineering and Licensing, who noted that this area had improved with the development of a large site engineering organization to support Unit 1 operations. The team saw this clearly when it reviewed the various functional levels of the engineering staff. In addition, since the implementation of the RAP, more management and team building training has been used to improve the functioning of the organization.

(4) Performance Standards and Self-Assessment

The team noted continued weaknesses in the area of performance standards and self-assessment, although some slight improvements were observed. The team evaluated the performance standards expected of NE&L employees as well as self-assessment activities taking place in the engineering organization. The team determined that the standards of performance for the Nuclear Division had been clearly relayed to all NE&L personnel, the NE&L personnel in key areas appeared capable. The completion of various elements of the NIP were included in the performance planning worksheets for the NE&L managers. The team reviewed the performance elements and standards of several of the senior managers in the engineering department and verified that these managers were in fact evaluated against these standards. The IAG provides NE&L with biweekly assessments of the implementation of the standards of performance. NE&L upper management has also implemented a program to receive feedback from employees twice a year regarding the productivity and quality of the organization to aid in identifying and improving deficient areas. The team reviewed the most recent productivity/quality profile for NE&L and noted that NE&L employees viewed the strong points in the organization to be problem solving, communications, and supervision, while the areas requiring most improvement to be planning, motivational climate, and role clarity.

The team noted a specific problem in the area of personnel performance concerning the RBEV system charcoal filters: site and corporate engineers did not communicate clearly concerning the methodology and acceptability of the test results for demonstrating the performance of the 10-kW and 1-kW heaters. Design questions had previously been raised by NRC on the 10-kW heater mounted in the inlet ductwork and the 1-kW heater cable cemented to the exterior of the filter housing. In September 1989, Instrument Surveillance Procedure No. N1-ISP-R-202-003, "RBEV Exhaust Duct Heater Instrument Channel Calibration," was performed to calibrate the thermostats that control the 10-kW and 1-kW heaters. A site engineering supervisor reviewed, approved and accepted these test results

based on a telephone conversation with the corporate design engineer and annotated the procedure accordingly. However, the design engineer was only aware of concerns about the 10-kW heater thermostat. Not until a month later, when he received a problem report for action, did the design engineer learn that there had been concerns about the 1-kW heater thermostats. This scenario indicated a weakness in the standards of performance concerning the verbal exchange of information or approvals involved in the design process. Specifically, no particular administrative controls in engineering required that followup documentation be promptly issued after the verbal exchange of vital information involved in the design process. Niagara Mohawk committed to review this area and properly address it in administrative procedures. (UNR 220/89-81-07)

The team interviewed the Supervisor-Quality Assurance Engineering and the Supervisor-Quality Assurance Audits to determine the oversight activities conducted by QA on the engineering department as well as the changes that have occurred in their organizations as a result of the RAP. The team noted that the new standards of performance emphasized in the Nuclear Division have had a positive effect on communications and team building between QA and other organizations in the Nuclear Division. These new standards, along with the inclusion of the QA department in the Nuclear Division, have helped resolve QA concerns. The team determined that QA has been involved in the RAP and NIP activities since their inception as evidenced by the appointment of the Vice President-Quality Assurance as the Director-Restart Task Force and the involvement of various members of the organization in the development of the RAP and the NIP.

The team reviewed the QA department's audit schedule to determine the quality and effectiveness of the audit program. Nine audits in the engineering area were reviewed, as well as a selected sample of the corrective actions taken as a result of these audits. The team identified concerns about several recent corrective action reports (CARs 89.3037, 89.3050, and 89.3057) issued in April-July 1989 which found that document change requests (DCRs) had been issued without reviewing the associated changes to determine if safety evaluations pursuant to 10 CFR 50.59 were required. Subsequent engineering review as a result of the CARs indicated that more than 1000 DCRs required review in order to make safety evaluation determinations. The issues contained in these CARs appeared to indicate weak or inconsistent performance in the safety evaluation area. The impact of this item is being assessed by the licensee. This task is scheduled for completion by November 15, 1989. NRC will review the results of this assessment. (UNR 220/89-81-08)

The team noted that an additional concern regarding standards of performance for special test controls. The team determined that one RBCLC pump had been tested in August 1989 to determine its performance at shutoff head. Although precautions appeared to have been observed, the procedure was performed as part of a troubleshooting operation controlled by a work request. A similar test

was scheduled to be run in September 1989 for the control room chilled water pumps but this test was controlled by the issuance of a special procedure. Subsequently, Standing Order 89-02 was issued by the plant superintendent requiring that special procedures be used in these types of circumstances. The past inconsistent practice prior to issuance of the Standing Order may impact its overall effectiveness at achieving its desired results.

(5) Teamwork

The team discussed team building with the Vice President-Nuclear Engineering and Licensing. The Vice President stated that Niagara Mohawk has emphasized team building skills and the resolution of problems at the lowest levels of the organization. Feedback from NE&L employees from the IAG's efforts and the town hall meetings conducted in June 1989 indicated that team building was one of the areas showing strongest improvement in the NE&L organization. Furthermore, discussions with the supervisor of QA audits indicated that the role of the QA organization and its relationship with the NE&L organization has been emphasized and strengthened as a result of the reorganization that occurred in March 1989 and which included the QA organization in the Nuclear Division. Subsequent to these discussions, the team interviewed other Niagara Mohawk employees and observed work activities, particularly in the operational experience assessment (OEA) and IST groups which confirmed the sense of daily teamwork.

In summary, improvements in team building appeared evident as reflected by the surveys of NE&L employees as well as the discussions that the NRC team had with various members of the NE&L organization.

Conclusions

Overall, Niagara Mohawk has made substantial progress in the engineering and technical support areas toward addressing and resolving the five underlying root causes of the identified management deficiencies.

The team concluded that the engineering and technical support organizations at Nine Mile Point were effectively addressing RAP and NIP issues, even though new concerns were identified for corrective action in the areas of problem solving and performance standards. Existing programs and processes should properly correct these new concerns. Clear improvements were noted in the other three underlying root-cause areas of planning and goal setting, organizational culture, and teamwork.

However, the team was concerned about Niagara Mohawk's weak performance regarding the safety evaluations. In one example, the safety evaluation was inadequate in its review of the impact of the fire protection modifications on the RBEV charcoal filter operability. In another example, safety evaluations had

not been conducted for issues that may have required such a review. This weakness appeared to be a combination of ineffective corrective action in the underlying root causes such as problem solving and standards of performance. Also, it indicated that definite improvement was needed not only in the method for performing safety evaluations but also in identifying when they are required.

3.1.5 Safety Assessment and Quality Verification

The team reviewed the functional area of safety assessment and quality verification to determine if the corrective actions adequately addressed the five underlying root causes identified in the Restart Action Plan (RAP). Technical references which provided a basis for the review include Technical Specifications (Section 6.0) and the quality assurance (QA) plan. The review included selected samples of committee activities, management meetings, QA programs and activities, and corrective action programs. Committee activities and management meetings included several meetings of the Site Operations Review Committee (SORC), an Integrated Team meeting, and periodic staff and scheduling meetings held by the Executive Vice President and the general superintendent. The team met individually with members of the station management group, the QA organization, and senior management. The team reviewed selected documentation in each of the above areas and assessed the effectiveness of management in setting priorities, establishing accountability, and promoting quality and safety at the plant.

Underlying Root Causes

(1) Planning and Goal Setting

Niagara Mohawk's mission, vision, goals, and standards of performance were communicated to employees by pocket-size pamphlets, calendar inserts, posters, and discussions at all levels of meetings. The team noted that many employees carried the small pamphlets on their person.

The team noted that a management-by-objectives (MBO) system was in place, at least at the upper management levels. As the objectives filtered down to the first-line supervision level, they tended to lose specificity or to not be in place because the MBO process was just beginning to be rigorously implemented (a long-term commitment). Niagara Mohawk held these personnel accountable for getting the message on objectives to employees.

The team discovered an inadequacy in the Nuclear Commitment Tracking System (NCTS), a major planning system. The RAP directed the establishment of a Nuclear Division planning and scheduling process which defined specific performance objectives, assigned responsibilities and priorities, and integrated and aligned the activities. A specific action associated with this objective was the development of NCTS and the verification that regulatory and licensing

commitments were entered into the NCTS system. The system tracked both internal and external commitments. However, Niagara Mohawk Letter NMP1L 0427, dated August 4, 1989, in response to the NRC Special Team Inspection Report 89-200, committed to train personnel to perform safety evaluations and interpret 10 CFR 50.59. The team identified that this commitment had not been entered into (and was not being tracked by) the NCTS at the time of this inspection.

Although the letter had no specific completion date, the training has not yet been completed and should have been tracked by the NCTS. Niagara Mohawk had recently conducted a comprehensive review of internal and external commitments to ensure these commitments were included in the NCTS. Niagara Mohawk was unable to determine how the review had missed this error. Niagara Mohawk took immediate corrective action to enter this commitment into the NCTS. Niagara Mohawk committed to take corrective action to ensure that no other commitments existed that were not being tracked. (UNR 220/89-81-09)

(2) Problem Solving

The team observed a heightened awareness of the importance of problem identification and resolution. Niagara Mohawk had generally concluded in to Readiness for Restart Report (RRR), that the back end of the problem solving process, the implementation of resolutions, was of more concern than the front end, problem identification. This was, in general, consistent with the staff's observations.

The team reviewed selected QA department audit reports and concluded that the subjects of the reports included the fire protection program, the inservice inspection program, licensing activities, staffing and training, and QA/SRAB-identified deficiencies and corrective action. These audits were performance-oriented and focused both on areas in which the NRC staff and other outside organizations had previously identified substantive problems as well as problems that were first identified by the audit process itself. Even though much of the scope of these issues had been previously identified, the audits served to provide a sharper focus and a more current assessment of the issues. The audits reflected significant depth of coverage of the issues and also reflected good ability to critique plant programs and assess issues on a performance basis. The team reviewed the status of the technical staff and management training deficiency noted in the staffing and training audit and found the progress toward resolution acceptable.

The QA audits appeared to serve effectively as one of the methods Niagara Mohawk used to identify problems. However, as illustrated many times in these QA audits, once the problem was identified, the resolution depended on appropriate personnel attitudes toward the mission at hand, buy-in by personnel to program goals, adequate resources, and appropriate management guidance and oversight. As discussed elsewhere in this report, Niagara Mohawk seemed to be providing these latter ingredients, but in varying degrees for different programs. Overall, the team concluded that QA audits were an effective component in the problem identification and resolution process.

The team noted the current development of an Independent Assessment Group (IAG) to conduct future assessments of the problem-solving process. IAG was projected to include a small group of management personnel reporting to the Executive Vice President-Nuclear. The group's objective, which was still in draft form, was to monitor the continuing effectiveness of the departmental self-assessment process at Nine Mile Point and ultimately to transfer the results of IAG assessment functions to the line organization. This long-term effort was in its early stages and, therefore, the team could not assess its overall effectiveness, but it appeared to be a needed initiative.

In the area of root cause analyses, it appeared that thorough, technically adequate evaluations were performed by qualified personnel. However, procedure, S-SUP-1, that defined the root cause evaluation program did not provide sufficient guidance in several areas. Specifically, trigger criteria for the initiation of a root-cause evaluation was not provided. The procedure merely stated that "other procedures describe the responsibilities for identifying incidents that require an investigation of root cause," and the list of referenced procedures did not appear to be all inclusive. In addition, the mechanism for requesting or initiating a root-cause evaluation was not defined in the procedure. Interviews with personnel indicated that no formal or consistent mechanism existed. The responsibility for coordinating the program and performing the evaluation was either unclear or nonexistent. Additional guidance to supplement the procedure was provided by the issuance of a memorandum in March 1989, rather than by the timely completion of required procedure changes.

Although the actual administration of the problem report system remained satisfactory, problems previously identified such as during the NRC STI had not yet been corrected. The procedures governing the program seemed to indicate that two separate programs exist within the Nuclear Division, as defined by two different active procedures, S-SUP-2 and NEL-018. The differences included: (1) the responsibility for numbering, prioritizing, and tracking of PRs assigned to two different organizations, with no centralized tracking system identified in either procedure, (2) the responsibility for reportability review of PRs was assigned to different organizations, and (3) three different PR forms could be used.

According to the lesson plan on deficiency reporting systems, the ongoing training referenced both procedures but appeared to emphasize only S-SUP-2. Site personnel contacted were generally unaware of NEL-018. The team understood that the NEL procedure was being revised, and that the improvement of this process as well as the root cause evaluation process, would be included in Niagara Mohawk long-term strategy as identified in the RAP. (UNR 50-220/89-81-10)

(3) Organizational Culture

The team assessed aspects of the organizational culture, as applied at upper management levels. The review included the effectiveness of meetings and the management-by-walking-around (MBWA) philosophy.

MBWA around was practiced. Site personnel who were interviewed indicated an acquaintance with their senior management as a result of the exercise of MBWA activities, as well as with the Executive Vice President-Nuclear through such mechanisms as the town hall meetings. There was a more-structured MBWA program planned as part of the ongoing NIP activities. Meetings were generally effective, including management staff and scheduling meetings, SORC, and the Integrated Team meeting. It was noted that organizational development professionals participated in certain of these activities, resulting in clear improvements. For example, the integrated assessment team meeting of October 13, 1989, was well organized, conducted efficiently, and adequately self-assessed at the conclusion of the meeting. Techniques learned through this improvement process were beginning to be applied throughout the organization.

(4) Performance Standards and Self-Assessment

As noted in previous functional areas, the standards of performance appeared to be generally understood. The team noted that many employees adopted them as guidance for performing routine work activities. However, there was still much to be done to filter the performance standards down into specific guidance and programs which govern first-line supervision and individual activities.

The team briefly observed quality control (QC) inspection activities and judged them to be effective. The QC inspectors on duty at the time of the observations were experienced, appeared familiar with the governing QA procedures, and were familiar with the work being performed and with the personnel involved. The QC inspectors were asked to sign off on several work requests and were observed to question the work group representatives closely regarding the status of the work before signing off by QC. The morale of the QC staff appeared to be high, and the frustration level was said to be lower than a year ago. This was attributed to an improved appreciation on the part of the maintenance organization that documentation of the work was important. The team concluded that these activities were effective.

Some managers, such as the station superintendent, have begun to proactively apply the standards of performance to their organizations' work activities. However, the team agreed with the Niagara Mohawk assessment that the standards remained to some degree "words on paper, without an action plan to hold people accountable for specific behaviors." Further development of specific standards of performance was identified as a long-term strategy and was included in the NIP.

Although the conduct of SORC meetings was effective, several areas required improvement. Niagara Mohawk was in the process of improving areas of self-assessment, planning, and training. However, the team observed that in some instances the committee had to deal with poorly prepared presentations, inadequate engineering and technical support, and inadequate technical review. Given such weaknesses, the SORC spent its efforts resolving technical concerns, taking the committee's full attention away from the broader safety aspects of the issues. In addition, the time and effort required to rework the poorly prepared material strained resources in engineering support.

(5) Teamwork

The team observed a number of positive interactions which were most likely attributable to the efforts made in response to this underlying root cause. For example, several employees voluntarily offered that the town hall meetings provided them with a welcomed opportunity to hear and see the Executive Vice President. Similarly, several stated that they felt involved in the process of responding to problems and that they were a part of their immediate organization's team.

Niagara Mohawk's integrated assessment team meeting was the most notable example of teamwork observed. The team consisted of mid-level managers from line organizations and met bi-weekly to review NIP items and issues related to restart. It was usually chaired by the station superintendent and offered a unique means for representatives from almost all line organizations to communicate. The meeting was well led, presentations were received in a professional manner, and members demonstrated the ability to discuss differing views in a non-confrontational manner.

There were other examples of employees striving to work together as a team or expressing appreciation for the development of the current climate having teamwork as an objective. In particular, several QC inspectors expressed appreciation for the new climate of teamwork in working with maintenance personnel. They said that teamwork and cooperation made their work more effective and their jobs easier.

Conclusions

The plant staff, particularly middle- and senior-level management, spent much of its time attending meetings. Niagara Mohawk was working to make these meetings more effective. Meetings were conducted in a professional manner and reflected a sense of teamwork. The quality of presentations varied. Presentations of poor quality sometimes meant spending too much time trying to understand the presentation and trying to provide technical guidance. In summary, the burden of meetings on management's time was significant. Meetings were generally effective in accomplishing their intended purpose, but some areas needed to be improved. The trend in this regard was improving.

Station personnel were found to be well informed regarding the RAP and the Nuclear Division's mission, vision, goals, and standards of performance. Further activities must take place, as envisioned in the NIP, before these management expectations will be completely integrated into the programs and performance assessments implemented by the first level of supervision.

The corrective action systems sampled, namely the root-cause evaluation program and the problem-reporting program, each required continued attention to correct procedural inadequacies and to clearly define the mechanisms of and responsibility for the programs.

3.2 Personnel Interviews

3.2.1 Scope

The team examined the operational culture at NMP Unit 1, as it pertains to attitudes and behaviors that can affect the safe operation of the plant. The interview questions were designed to assess specific aspects of the operational culture, including (1) the extent to which individuals understood and accepted the vision, goals, mission, and standards of performance presented in the Nuclear Division phamphlet and (2) experiences with and attitudes toward teamwork, communications, and procedural adherence. The team interviewed individuals at all levels of the Nuclear Division to determine the extent to which the expressed attitudes and beliefs were representative of the nuclear organization as a whole.

The conclusions that follow were based upon interviews with (1) operators from three different shift groups at all levels (i.e., shift supervisors, senior reactor operators/shift technical advisors (SRO/STAs), chief shift operators (CSOs), and non-licensed operators); (2) technicians and managers from instrumentation and control, mechanical maintenance, radiation protection, and chemistry; (3) Nuclear Division middle and upper management; (4) restart task force personnel; (5) members of the restart review panel; and (6) assessors who were on the restart review panel, including independent consultants.

Underlying Root Causes

(1) Planning and Goal Setting

Nearly everyone interviewed was aware of and understood the goals of the Nuclear Division. The vision, goals, and mission statement was viewed favorably by the employees as an effective means of providing a common focus and point of reference. Providing this statement in writing (as a wallet-sized pamphlet) appeared to have given employees a sense that management was committed to these efforts and that all employees had a tool for holding others accountable.

The Restart Action Plan was circulated among all levels and opportunity for input was provided. Those who provided input indicated that they received adequate feedback. Town Hall meetings were well received, and many of those interviewed expressed a desire to see these efforts continued. The opportunities for input into the Restart Action Plan and the town hall meetings appeared to have been effective initial efforts in gaining support for the effort toward establishing a new operating culture.

(2) Problem Solving

The personnel interviews did not provide a meaningful basis to evaluate problem solving.

(3) Organizational Culture

There existed so-called "pockets of residual culture", however, this group appeared to be in the minority (albeit the group was articulate and vocal). Those interviewed in this category alternately placed blame for problems on over-regulation, inaccurate observations by the NRC, and ineptitude on the part of station management. Management believed that this problem would be solved by giving employees opportunities to change jobs within the system, through positive peer pressure to buy into the new culture, and through the positive reinforcement that will result from that culture. It was to management's credit that career paths were offered within Niagara Mohawk for those who wished to transfer out of the control room. However, the possibility existed that those personnel could be "frozen" in their positions in the control room until they can be replaced by new licensed operators. This presented the potential for a problem because people not satisfied with the content or context of their jobs could be held in positions for a considerable amount of time while waiting for replacements. (The new licensed operator class does not start until January 1990, and new operators will not be ready to go to work until 1991 at least.)

Operators indicated that they were working too much overtime (12-hour shifts, 7 days in a row). Most stated that in order to avoid working more than 6 consecutive 12-hour shifts, they had to personally find a replacement to work for them on the seventh day. One senior level operator expressed the opinion that it was not the function of non-supervisory employees to do their own shift scheduling. This was an example of an area in which management was having difficulty responding to the needs of Nuclear Division employees.

(4) Performance Standards and Self-Assessment

When questioned, everyone interviewed stated that strict procedural adherence was required and that work must stop if a procedure was identified as incorrect or deficient in any manner. However, not all personnel agreed with this philosophy and performance was inconsistent. One operator described an instance in which work was stopped for a minor change. However, this junior

member of the crew also indicated that it required repeated efforts to convince the senior shift supervisor (SSS) on shift that the modification had to be made and work had to stop. Furthermore, this operator and another from the same crew indicated that absolute, to-the-letter compliance seemed to preclude thinking. The more senior operator also indicated that procedures should only be used as guidelines and that most operators held this same opinion. The opinion was also expressed by this individual that temporary change notices (TCNs) were a holdup to producing electricity. Further, regarding two instances, the system walkdown procedures and the administrative procedure for developing surveillance test procedures, certain key managers espoused the view that these documents should be used as guidance or that certain steps were optional. The above suggested that some members of the plant management and staff may not fully understand the concept of procedural adherence.

Collectively, interviews with operators and others indicated that they understood the rules with respect to procedural adherence and that they would follow these rules. However, the responses also suggested that procedural adherence was an area in which management must further define and clarify its expectations in order to ensure that the plant staff is motivated to consistently perform in this regard.

The Integrated Assessment Group (IAG) may be a key component in maintaining the cultural changes observed. The leader of the IAG indicated that this group demonstrated to all levels of the organization that sustained improvement in performance was a key management expectation. In that regard, the principal function of this group was to act in a coaching capacity for departmental and divisional self-assessment using a parallel assessment model. Simply put, this meant that IAG personnel assessed managers while managers assessed themselves, coaching them through the process. The group will progress through three phases. The first phase will be an initiation phase during which people will be made aware of the function of the group and will be trained on the self-assessment process. The second phase will be for implementing the process. This is the phase during which the parallel assessment model will be used. Finally, the monitoring phase will be reached. At this point, it is expected that self-assessment will become a permanent way of life for the Nuclear Division, with the IAG functioning as a support organization when people need assistance.

(5) Teamwork

Although some people still believed that no communication or teamwork problems existed before shutdown (particularly in the operations department), the majority of working level people addressed various improvements at Nine Mile Point. Some of the positive examples of improved communication cited were: increased use of morning meetings to organize work activities and inform personnel of current issues, proper use of the chain of command, no reluctance to properly seek clarification of decisions made by or to obtain clarification of work directives, increased use of "management by walking around," and positive employee reaction to these efforts.

With respect to teamwork, managers considered that the formation of the Integrated Team is an important and effective step in developing teamwork at the management level. Verification of teamwork through the use of ratings at the conclusion of meetings was also identified as a tool in developing teamwork skills. These ratings were conducted initially with the assistance of organizational development consultants. Subsequently, management personnel were able to rate their own meetings based on what they learned from the consultants. The meetings were rated with respect to effectiveness and interpersonal communications. Common ownership of problem-solving tasks was frequently mentioned as an important part of the new management culture, in contrast to a prior tendency to place blame on the workers.

Interviews with technicians and line management did not reveal any significant problems in teamwork at the worker level. Individuals expressed a sense of increased respect for co-workers and for themselves. Some reasons given for this new sense of mutual respect were an increase in camaraderie among and across teams, a desire on everyone's part to do things the correct way, a feeling that workers were really supporting the program, and a realization that management was open to suggestions from workers. They also indicated that they use the vision, goals, and mission statement (i.e., the wallet-size brochure) as a means of providing a friendly reminder when teamwork falters.

Operations and Training

The overall relationship between operations and training staffs improved as perceived by members of both the operations and training staffs. The credit for the improvement in this relationship was largely attributed to the participation of the operators in the job and task analysis and the job performance measures needed to develop the systems approach to training (SAT)-based program at Nine Mile Point, Unit 1. A greater emphasis by the training department on relating training more closely to day-to-day operations, rather than on passing exams and improvements in the training staff were also cited frequently as reasons for the better relationship between operations and training.

While the operations training program advisory committee (OTPAC) appears to have contributed initially to the improved relationship between operations and training departments, interviews with operators revealed waning support for this program. Reasons given were: (1) OTPAC has no real power, (2) shift work and overtime make attendance at these meetings difficult, and (3) there were no longer any issues to be addressed. In general, the improved relationship between training and operations can be largely attributed to improved communication between these groups. In order to ensure continued progress in this relationship, the quality of communications between these two groups should be assessed on an ongoing basis and consideration given to a permanent mechanism dedicated to facilitating these communications.

In the area of management effectiveness, the Nuclear Division was conducting a survey using the productivity/quality profile. Such questionnaires can be useful when data analysis, followup, and feedback are conducted appropriately. With respect to this particular instrument, when people answer candidly, the questionnaire can identify problems with organizational effectiveness. The

caveat is that the responses need to be coded according to the part of the organization from which they originate so that particular or specific problem areas or groups can be identified. Managers of these groups need to work with organizational development people when negative results are the outcome. According to written information provided by the licensee, such activities were planned once the results of the survey were completely analyzed.

3.2.2 Conclusions

The continuation of organizational development activities and the new, permanent organizational development function capability within Niagara Mohawk are also a positive indication that cultural changes will continue to be facilitated. Given that there appeared to be some continuing pockets of resistance at the worker level, some consideration should be given to organizational development interventions at that level. These interventions should not be of the type that singles people out when problems have been identified. Rather, they should consist of programs that are for entire groups within any job classification.

Overall, the team concluded that interview results support a position that improvement in the five URC areas was apparent. However, there appeared to be a continued weaknesses in the standards of performance area associated with inconsistent understanding of the procedural adherence standard. The most noteworthy aspect of this weakness is that, in at least certain instances, it was displayed by various levels of site personnel from the senior management rank down to the working level.

4. SUMMARY OF COMMITMENTS

The following summary of Niagara Mohawk commitments is presented for convenience and cross reference purposes. The items are described in Section 3.

(1) Niagara Mohawk will review all departments' methods of overtime control and tracking. (See Section 3.1.1, discussion of URC 2, Unresolved Item 220/89-81-01.)

(2) Niagara Mohawk will complete the review of performance deficiencies noted during the reload system and area walkdowns, and will take appropriate corrective action. These actions will be completed before the restart system and area walkdowns take place. (See paragraph 3.1.1, discussion of URC 4, Unresolved Item 220/89-81-02.)

(3) Niagara Mohawk will complete corrective actions to ensure that all vendor manuals are being properly controlled and updated. (See paragraph 3.1.3, discussion or URC 2, Unresolved Item 220/89-81-03.)

(4) To verify the technical adequacy of surveillance procedures, Niagara Mohawk agreed to review a broader sample of surveillance procedures. After reviewing the results, Niagara Mohawk will determine whether to increase the sample size in order to establish a confidence in and to document a basis for the technical adequacy for the scope of surveillance procedures verified through the NRCI-4 program. (See paragraph 3.1.3, discussion of URC 2, Unresolved Item 220/89-81-04.)

(5) Niagara Mohawk will complete implementation of preventive maintenance for electrical area inspections for motors designated as important to safety. (See paragraph 3.1.3, discussion of URC 4, Unresolved Item 220/89-81-05.)

(6) Niagara Mohawk will review the improper technique for obtaining pump vibration data, including a comprehensive root cause analysis. (See paragraph 3.1.4, discussion of URC 2, Unresolved Item 220/89-81-06.)

(7) Niagara Mohawk will complete the review and take appropriate corrective action to control telephone approval of design-related concerns by engineering personnel. (See paragraph 3.1.4, discussion of URC 4, Unresolved Item 220/89-81-07.)

(8) Niagara Mohawk will complete the review and take appropriate action on reports of corrective action that deal with the failure to properly conduct a 10 CFR 50.59 review of document change requests. (See paragraph 3.1.4, discussion of URC 4, Unresolved Item 220/89-81-08.)

(9) Niagara Mohawk will complete the review and will determine why the commitment to conduct training in safety evaluations, was not on the nuclear commitment tracking system. (See paragraph 3.1.5, discussion of URC 1, Unresolved Item 220/89-81-09.)

(10) Niagara Mohawk will clarify the guidance in procedures for analyzing root-causes and reporting problems. (See paragraph 3.1.5, discussion of URC 2, Unresolved Item 220/89-81-10.)

5. ISSUES FROM SPECIAL TEAM INSPECTION

During this inspection, the team reviewed progress in resolving the issues listed below that were associated with the special team inspection of February-March 1989 (NRC Inspection Report No. 50-220/410/89-200). Only the item number and short summary title of the unresolved item are given. All of these items remain open pending completion of Niagara Mohawk actions and subsequent NRC staff review.

(1) 50-220/89-200-01 Procedure Compliance (Updated in paragraphs 3.1.1 and 3.2.1.)

(2) 50-220/89-200-02 Generic Maintenance Procedure (Update in paragraph 3.1.3.)

(3) 50-220/89-200-03 Exercising Relay Contacts (Update in paragraph 3.1.3.)

(4) 50-220/89-200-06 and 10 Safety Evaluation Training (Update in paragraph 3.1.4.)

6. MANAGEMENT MEETINGS

On October 4, 1989, the NRC Integrated Assessment Team conducted the entrance meeting for the inspection at the Nine Mile Point Training Center. The Team Manager, Mr. James T. Wiggins, and the Team Leader, Mr. Richard J. Conte, conducted this meeting. At the meeting, the purpose and objectives of the inspection were described to the Niagara Mohawk Executive Vice President-Nuclear Operations and other members of the Nuclear Division management and staff.

On October 20, 1989, the IATI team conducted the exit meeting. Also present at this meeting from NRC were Mr. William F. Kane, Director, Division of Reactor Projects, Region I and Mr. Robert A. Capra, Director, Project Directorate I-1, Office of Nuclear Reactor Regulation. At this meeting, the significant results of the inspection were conveyed to Niagara Mohawk senior management.

Following the exit meeting, Messrs. Kane, Wiggins and Conte conducted a press conference to discuss the team's preliminary conclusions.

At no time during the inspection were draft materials provided to Niagara Mohawk.

APPENDIX A

Acronyms

ALARA	-	As Low As Reasonably Achievable
CAL	-	Confirmatory Action Letter
CAR	-	Corrective Action Report
CSO	-	Chief Shift Operator
DCR	-	Document Change Notice
EDG	-	Emergency Diesel Generator
EEI	-	Edion Electric Institute
EOP	-	Emergency Operating Procedures
HPES	-	Human Performance Evaluation System
IAG	-	Independent Assessment Group
IATI	-	Integrated Assessment Team Inspection
I&C	-	Instrumentation and Control
INPO	-	Institute Nuclear Power Operations
ISEG	-	Independent Safety Engineering Group
IST	-	In-Service Testing
LER	-	Licensee Event Report
LLRT	-	Local Leak Rate Test
MBO	-	Management By Objective
MBWA	-	Management By Walking Around
NCR	-	Non-Conformance Report
NCTS	-	Nuclear Commitment Tracking Sytem
NE&L	-	Nuclear Engineering and Licensing

NIP	-	Nuclear Improvement Program
NMP	-	Nine Mile Point
NMPC	-	Niagara Mohawk Power Corporation
NRC	-	Nuclear Regulatory Commission
ODI	-	Operations Department Instruction
OEA	-	Operational Events Assessment
OR	-	Occurrence Report
OTPAC	-	Operations Training Program Advisory Committee
PATP	-	Power Ascension Test Program
PM	-	Preventive Maintenance
PR	-	Problem Report
QA	-	Quality Assurance
QC	-	Quality Control
RAP	-	Restart Action Plan
RBCLC	-	Reactor Building Closed Loop Cooling
RBEV	-	Reactor Builing Emergency Ventilation
RP	-	Radiation Protection
RRR	-	Readiness for Restart Report
RWP	-	Radiation Work Permit
SALP	-	Systematic Assementment of Licensee Performance
SORC	-	Station Operations Review Committee
SRAB	-	Station Review and Audit Board
SRO	-	Senior Reactor Operator

ST	-	Surveillance Test
STA	-	Shift Technical Advisor
TS	-	Technical Specification
URC	-	Underlying Root Cause

APPENDIX B

Documents Reviewed

-- N1-OD1-1.02, Department Goals, Revision 0 (February 1989)

-- N1-OD1-1.07, Operations Self-Assessment Program, Revision 1 (July 1989)

-- N1-OD1-3.02, Control Room Conduct, Revision 1 (May 1989)

-- N1-OD1-6.01, Lessons Learned Book, Revision 0 (March 1989)

-- N1-OD1-6.02, Selection Criteria for Reactor Operator Candidates, Revision 0 (March 1989)

-- N1-OD1-6.04, Selection Criteria for Senior Reactor Operator Candidates, Revision 0 (September 1989)

-- N1-ST-V7, Reactor Building Closed Loop Cooling System Pump and Valve Operability Test

-- N1-RAP-6, Post Scram Analyses and Evaluation

-- N1-FST-FPL-SA-008, Low Pressure Carbon Dioxide System Functional Test, Revision 1 (August 14, 1989)

-- AP-4.0, Administration of Operations, Revision 13 (October 9, 1989)

-- N1-88-6.6, Revision 3, System and Area Walkdowns for Restart

-- Corporate Quarterly HP Audits for 1988 and 1989 (Total of 8 Audit Reports)

-- SRAB Audit #88-090 and #89-81

-- ALARA Program Audit, June 1989

-- INPO Audits April 1989 and March 1989

-- Performance Planning Worksheets

-- RP Performance Monitoring Report September 1989

-- Comparison of ALARA Program 1988 to 1989

- Draft Procedures:
  - S-RPIP-9.3, Radiological Occurrence Reports
  - S-RPIP-9.2, Review of Radiological Work Practices
  - S-RPIP-9.5, Radiation Protection Self-Assessment
  - S-RPIP-9.4, Radiological Occurrence Investigation and Root-Cause Determination
- Station Tour Results (Form)
- Letter NMP-47004, "1989 Rad Support Goals"
- Letter NMP-35745, "Radiological Performance Improvement Plan"
- RWP Request, RWP, and Time and Exposure Log 890915
- Letter NMP-45701, "1989 Radiation Protection Department Goals"
- Procedure No. S-SUP-1, "Root Cause Evaluation Program"
- Procedure N1-89-10, "Unit 1 Radwaste 225' Cleanup ALARA Plan"
- ISEG Report on Main Steamline Radiation Monitor Failures at Unit 1 - September 29, 1989
- Engineering Critique - Structural Modifications in Support of RAP Specific Issue 15
- Performance Appraisals - Engineering Managers
- Monthly Performance Monitoring Management Information Managers Report - August 1989
- 1989 NE&L Goals
- Tiered Training Program for Managers
- ISEG Personnel Resumes
- Nuclear Division Organizational Chart - September 21, 1989
- Nuclear Division Functional Organization Chart - June 1, 1989
- ISEG Activity Report for June, July, August and September 1989

-- ISEG Report on IST Program Implementation - October 18, 1989

-- Nuclear Division Management Policy - NDMP - 31

-- CAR 89.3035, dated April 13, 1989

-- QA Audit 880003-RG/IN, dated March 4, 1989

-- QA Audit Report 88017-RG/IN, dated October 11, 1989

-- QA Audit Report 88023-RG/IN, dated January 20, 1989

-- QA Audit Report 88025-RG/IN, dated January 17, 1988

-- QA Audit Report 88026-RG/IN, dated January 11, 1989

-- QA Audit Report 89005-RG/IN, dated May 15, 1989

-- QA Audit Report 89006-RG/IN, dated May 24, 1989

-- QA Audit Report 89013-RG/IN, dated September 25, 1989

-- Supervisory Procedure S-SUP-1, "Root-Cause Evaluation Program," dated March 3, 1989

-- Training Schedule - NE&L Critical Training Needs

-- CAR 88.2042, dated October 4, 1988

-- CAR 89.3059, dated July 6, 1989

-- Engineering Disposition 1-88-ED0755, dated September 13, 1989

-- CAR 87.3067, dated May 28, 1987

-- CAR 87.3061, dated May 13, 1987

-- CAR 88.3134, dated December 27, 1988

-- Station General Order 88-7, Revision 2, dated April 3, 1989

-- Integrated Restart Schedule, dated October 14, 1989

-- Outage Summary Sheet, dated October 16, 1989

-- Unit 1 Performance Monitoring Program Report, dated October 2, 1989

-- RAP Specific Issue No. 1 Assessment Report, "Outage Management Oversight," dated August 31, 1989

-- Temporary Procedure No. N1-88-6.0, "Restart Requirement for Core Reloading, Administrative Control Procedure," dated September 13, 1989

-- Interim Outage Organization, Specific Issue No. 1, Corrective Action 1.A.1, Revision 0, dated July 13, 1989

-- ISEG Group Functional Organizational Chart

-- Problem Report 504, dated October 3, 1988

-- Problem Report 1361, dated May 5, 1989

-- INPO Human Performance Evaluation System, Revision 1, dated January 1988

-- NMPC Productivity/Quality Profile, dated August 26, 1989

-- QA Department Involvement in RAP and NIP Activities, dated October 9, 1989

-- Procedure No. N1-1SP-M-036-008, Revision 2, March 28, 1989, H1Rx Pressure, E.C./LO Rx Press, Core Spray Permissive Instrument Trip Channel Test/ Calibration

-- AP 5.5.2, Revision 0, October 1, 1989, Deficiency Tagging System

-- AP 3.4.1, Revision 3, August 8, 1989, Site Operations Review Committee

-- AP 8.5, Revision 2, March 1, 1988, Housekeeping and Cleanliness Control

-- AP 6.0, Revision 7, July 24, 1989, Procedure for Modifications

-- AP 5.0, Revision 16, June 1, 1989, Procedure for Repair

-- AP 8.2, Revision 3, July 27, 1987, Surveillance Testing and Inspection Program

-- AP 7.0, Revision 6, January 9, 1989, Procedure for Control of Material and Services

-- NT-130A, Revision 2, July 6, 1987, Technical Specification Change Control

-- S-NRCP-11, Revision 1, June 27, 1989, Internal and External Commitments Utilizing Nuclear Commitment Tracking System

-- AP 4.2, Revision 0, August 17, 1989, Control of Equipment Markup

-- NMPC Material Test Report-Relief Valves Pref #1704

-- Procedure 89-9, Revision 0, October 12, 1989, Functional Test and Adjustment of MG Set 162 Auto Transfer

-- Work Control Center Concept and Philosophy - Precursor to AP 5.5

-- Draft AP 5.5, Work Control, Revision 0

-- Draft AP 5.5.1, Work Request, Revision 0

-- Breach Permit 1277 Door 260

-- Work Request 167464 - 81/51 Core Spray Topping Pump No. 121

-- Procedure N1-1SP-R-031-503, Revision 0, January 7, 1988, Type "C" Containment Isolation Valve Leak Rate Test Penetration X-4A

-- Procedure No. NRM1-507, Revision 0, December 27, 1987, Control of Station Manuals

-- Draft Vendor Technical Manuals - Review and Processing NEL-426, Revision B

-- Procedure No. N1-EPM-GEN-M-178, Revision 2, February 19, 1988, Elect Maintenance - Monthly Rounds

-- Technical Procedure No. S-TOP-R System Layup Control Program Guidelines

-- Work Request 153656, Core Spray Field Weld, 166460, Core Spray Field Weld

-- N2-ESP-ENS-M731, LPCS/LPCI Auto Start Time Delay Relays, Revision 4

-- N1-ISP-M-032-004, Reactor Recirculation Flow Converter Calibration, Revision 3

-- N1-ISP-R-031-503, Type C Containment Isolation Valve Leak Rate Test, Feedwater Isolation and Valve 31-07

-- S-SUP-2, Revision 4, Problem Report Program

-- S-SUP-4, Procedure Change Requests

-- AP 8.1, Preventive Maintenance, Revision 5

-- SGO-89-01, Administrative Controls for Scheduling and Conduct of TS ST's, Revision 2

-- SGO-89-03, Procedure Adequacy and Compliance, Revision 1

-- NRC1-4 (Draft) Surveillance Test Compliance Review

-- Surveillance Verification Programs Reload Report, Revision 1, dated August 17, 1989

-- S-NRCP-5, Revision 1, Surveillance and Maintenance Program

-- S-NRCP-8, (Draft), Procedure for Technical Review

-- AI-1.0, Site Writer's Guide, Revision 0

-- N1-OSI-8, Operator Surveillance Test Procedure Writer's Guide, Revision 0, Surveillance Test Matrix

-- Procedure N1-ST-V7, Revision 0, Reactor Building Closed Loop Cooling System Pump and Valve Operability Test

-- Modification N1-89-159, Reactor Building Emergency Ventilation 10 KW Duct Heater

-- Procedure N1-ISP-R-202-003, Reactor Building Emergency Ventilation Exhaust Duct heater Instrument Channel Calibration

-- WR No. 154051, August 17, 1989, Troubleshoot #11 RBCLC Pump

-- Procedure N1-88-6.8, Restart Requirements for Core Regarding, IST Program

-- Specification MDC-11, Revision 3, August 28, 1989, Pump Curves and Acceptance Criteria

-- N1-ST-Q13, Revision 3, ESW Pump Operability Test

-- N1-ST-R16, Revision 9, ESW Pump Header Test

-- Bechtel Report to NMPC dated July 27, 1989, Bechtel Job No. 20320-001, Inservice Inspection Reports

-- Site Engineering Instruction 705, Revision 1, Pump and Valve Reference Valves, Establishment and Revision

-- Site Engineering Instruction 708, Revision 0, NMP1 Inservice Testing Acceptance Criteria

-- Site Engineering Instruction 708.A, Revision 1, NMP1 Pump Reference Valve Acceptability

-- Station General Order 89-02, Revision 0, Special Tests and Experiments

-- Internal Memo from J. Fromm to OEA Committee dated March 14, 1988, Review and Response to INPO SOER 86-3, NRC IN 86-01 and Other Re Check Valve Problems

-- Calculations S10-202-HV01, Reactor Building Emergency Ventilation Systems 10 KW Duct Heater

-- Calculation S13-4-70-F005 by United Engineer/Constructors, System No. 70 Hydraulic Model

-- Problem Report 1590, Reactor Building Emergency Ventilation Filter Train Heater Thermostat

-- Problem Report 1257, RBCLC Pumps

-- Problem Report 1497, RBCLC Drywell Air Cooler Return Isolation Valve

-- Problem Report 1248, ESW Pumps

-- Problem Report 1487, ESW Pumps

-- Corrective Action Request 89.3037, April 20, 1989, Item from Audit Report 89005

-- Corrective Action Request 89.3050, May 17, 1989, Item from Audit Report 88029

-- Corrective Action Request 89.3057, July 3, 1989, Item from Audit Report 89010

-- Technical Specification Interpretation No. 39, April 14, 1989, Systems Required in Cold Shutdown or Refuel When Irradiated Fuel Is In Vessel

-- Technical Specification Interpretation No. 53, July 28, 1989, Technical Specification 3.3.2 Pressure Suppression System Pressure and Suppression Chamber Water Temperature and Level

-- Technical Specification Interpretation No. 58, September 8, 1989, Sections 3.2.7, 3.3.4 and Table 3.6.2.b

-- Technical Specification Interpretation No. 59, August 17, 1989, RBCLC and ESW Pumping Requirements for Reload

-- Technical Specification Interpretation No. 60, August 17, 1989, Technical Specification 3.1.1 Control Rod System

-- S-SUP-1, Revision 2, Root Cause Evaluation Program

-- S-SUP-2, Revision 4, Problem Report Program

-- NEL-018, Revision 1, Problem Report Program

-- AP 3.4.3, Revision 4, Technical Review

-- AP 3.4.1, Revision 3, Site Operations Review Committee

-- RAP-101, Lesson Plan, Deficiency Reporting System

-- SP-15.00, Draft, Deficiency Reports

-- Memorandum, March 22, 1989, from C. L. Stuart, C. D. Terry, J. L. Willis, J. P. Beratta to Nuclear Division Managers, Superintendents, Supervisors

-- QAD Audit Report 89003-RG/IN: 1988 QAD/SRAB Fire Protection Audit, dated April 19, 1989

-- QAD Audit Report 89010-RG/IN: Inservice Inspection (NMP-1&2), dated July 18, 1989

-- QAD Audit Report 89011-RG/IN: Licensing Activities (NMP-1&2), dated August 15, 1989

-- QAD Audit Report 89007-RG/IN: Staffing and Training (NMP-1&2), dated June 19, 1989

-- QA/SRAB Audit Report 89004-RG/IN: Deficiencies and Corrective Action (July 1988-December 1988), dated June 5, 1989

-- Procedure No. S-NRCP-11, Internal and External Commitments Utilizing Nuclear Commitment Tracking System (NCTS), Revision 1, Effective June 27, 1989

-- Draft QA Procedure 16.03, Revision 6, Corrective Action Requests

-- Corrective Action Request 88.3038, Issued to Nuclear Training

-- Computer Printout of CAR Status for the 3000 Series CARs

-- Memorandum, M. A. Dahlberg to J. L. Willis, Standards of Performance, July 20, 1989

-- Memorandum, J. L. Dillon to Distribution, Revised Corporate QA Audit Schedule

-- Memorandum, J. A. Perry to Designees, Overdue CARs and NCRs, October 11, 1989

-- System Walkdowns Per N1-88-6.6

-- Requalification Training - Power Oscillations, Power Ascension Testing

-- Hydro of Sprinkler System

-- Requalification Training - Regulatory Guide 1.97 and SOP-14

-- Operator Rounds

-- CO^2 System Functional Test

-- RBCLC Surveillance (IST)

-- Inspection of Core Spray Topping Pump

-- Weekly Team Tour of Plant to Observe Radiological Work Practices on October 12, 1989. Team Included Personnel from Construction Services, Buildings and Grounds, Operations, Fire Protection, CBI (Trade Contractor) and two RP Personnel

-- Scaffold Dismantling in the Drywell

-- Work Planning Meeting

-- Video Review of Robot Arm to be Used in Radwaste Cleanup

-- Root Cause Evaluation Meeting on the 124 V DC System, October 10, 1989

-- Team Meeting on the 125 V DC Modifications on October 12, 1989

-- Site - Corporate Engineering Briefing, October 13, 1989