

SELF-APPRAISAL TEAM REPORT

APRIL, 1988

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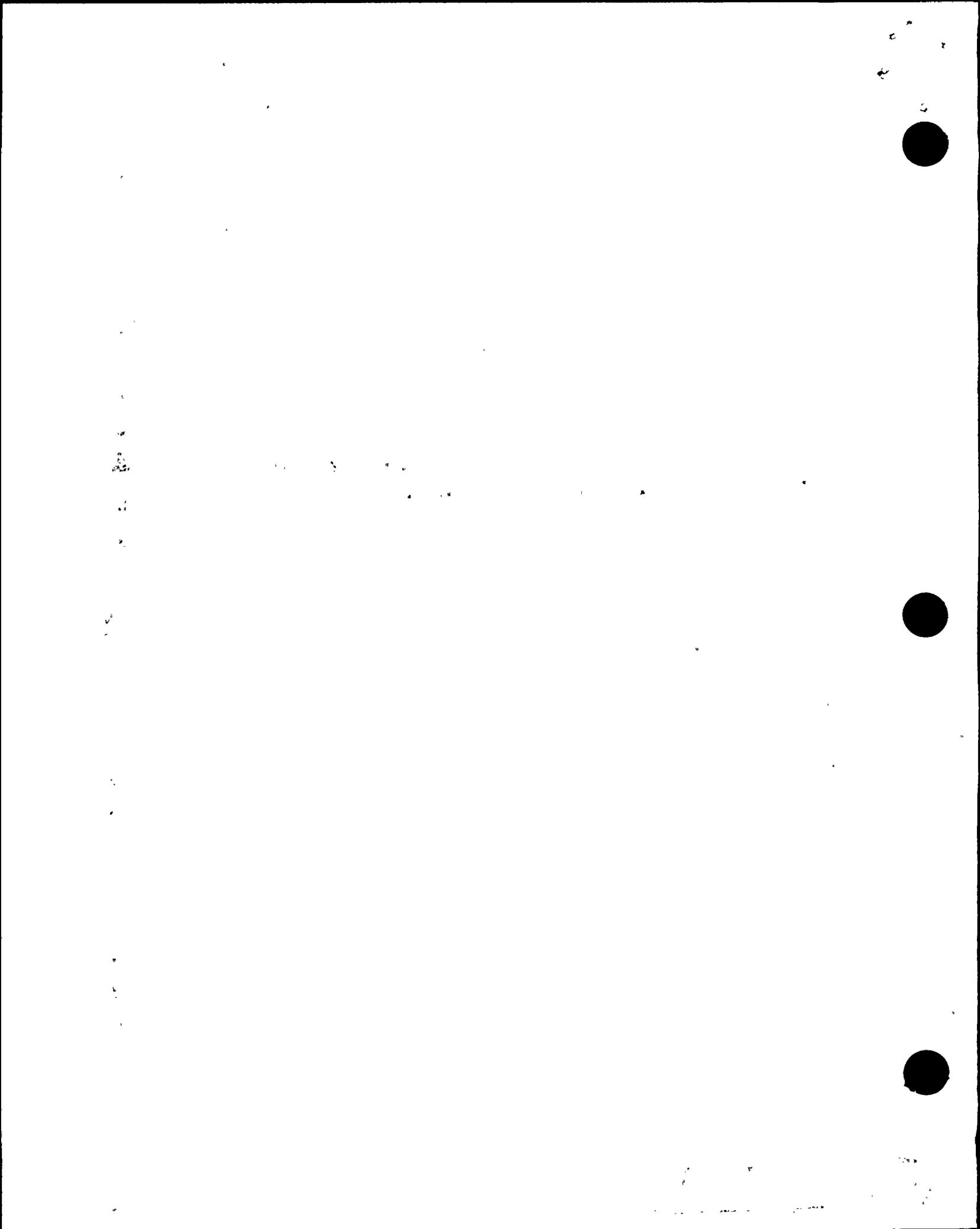


TABLE OF CONTENTS

1. INTRODUCTION
2. EXECUTIVE SUMMARY
3. BACKGROUND
4. CONDUCT OF CONTINUING PROGRAM
5. UPDATE OF RESULTS BY TOPIC
6. STATUS OF ORIGINAL UNIT 2 RECOMMENDATIONS
7. NEW RECOMMENDATIONS
8. FOLLOW-UP PLANS
9. CONCLUSIONS

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1. INTRODUCTION

This report describes the organization, conduct and results of a continuing self-assessment program conducted by Niagara Mohawk Power Corporation personnel. This phase of the program covered both Unit 1 and Unit 2, and began with the start of Test Condition 3 of the Unit 2 Power Ascension Program. This report covers an assessment period from October 1987 through March 1988. The purpose of the self-assessment process is to evaluate the effectiveness of Niagara Mohawk's operation of its nuclear station and identify areas requiring management attention.

1A. PURPOSE

Niagara Mohawk Power Corporation originally established a self-assessment program on June 4, 1987. The purpose was to perform a self-appraisal similar to the Nuclear Regulatory Commission's Systematic Assessment of Licensee Performance (SALP) in order to measure the success of the Unit 2 Power Ascension Program. The activities of the program were carried out by a Self-Appraisal Team appointed by Senior Management. At the completion of Test Condition 2, Niagara Mohawk briefed the Nuclear Regulatory Commission staff regarding the conduct of the program. Subsequently, Niagara Mohawk restructured the Self-Appraisal Team and charged it to assess Unit 1 as well as Unit 2 activities.

1B. SCOPE

For the present phase, the Self-Appraisal Team organized the review into topical areas consistent with major functional activities and generally paralleling those used by the NRC in its Systematic Assessment of Licensee Performance. These areas include Operations, Radiological Controls, Maintenance, Licensing, Training, Engineering Support, and Assurance of Quality. This report describes the activities and findings of the Self-Appraisal Team.

1C. REPORT BREAKDOWN

Section 2 is the Executive Summary. This section provides an overview of the organization, process, results, and conclusions.

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Section 3 gives general background on the self-assessment program, the Self-Appraisal Team, and the Management Oversight Committee.

Section 4 is a description of the Self-Appraisal Team activities during the period covered by this report.

Section 5 contains the results of the self-appraisal program.

Section 6 provides a summary status for the recommendations identified in the initial Self-Appraisal Team report for Unit II.

Section 7 discusses the specific recommendations made as a result of the observations described in Section 5.

Section 8 describes Niagara Mohawk's plan for monitoring the implementation and effectiveness of the recommendations generated by the self-appraisal program.

Section 9 describes the overall conclusions resulting from the Self-Appraisal process, and an assessment of the program as a management tool.

2. EXECUTIVE SUMMARY

This report describes a self-assessment process covering the period from October 1987 through March 1988. This assessment was conducted by a Self-Appraisal Team of senior individuals with responsible positions, which reported to a Management Oversight Committee. The Self-Appraisal Team evaluated the functional activities of Operations, Radiological Controls, Maintenance, Licensing, Training, Engineering Support and Assurance of Quality. This report includes a description of the significant Self-Appraisal Team observations, recommendations for improvement, and conclusions regarding performance of the nuclear organization and the self-assessment process.

Overall, the observations and evaluations performed during this self-assessment period indicate that Niagara Mohawk has operated and maintained both Units in a safe and effective manner, however, there were a number of areas where potential improvements were identified. In general, the material condition of the plants and the technical capabilities of the

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personnel were assessed as strong points. Most of the identified potential improvements were in the area of management effectiveness. Specific recommendations for improvements are contained in Section 7 of this report. Discussion of observations regarding management performance is included in Section 5.

Niagara Mohawk has concluded that the Self-Appraisal concept is an effective way to identify significant concerns and problems. Niagara Mohawk has, therefore, decided to continue the self-assessment process but has made some changes to emphasize responsive and timely corrective measures.

3. BACKGROUND

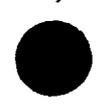
This report describes the organization, conduct and results of the second and most recent phase of a self-assessment program undertaken by Niagara Mohawk Power Corporation. The self-assessment program was administered by a team comprised of senior individuals with responsible positions, who reported to a Management Oversight Committee. The Self-Appraisal Team based its findings upon its own observations, formal and informal interviews, its evaluation of procedures and other documents, and an analysis of available trend information.

Niagara Mohawk established a self-assessment program on June 4, 1987. The focus and scope of this program was the Unit 2 power ascension test program through Test Condition 2. On September 13, 1987, Niagara Mohawk issued a report prepared by the Self-Appraisal Team describing the conduct and results of the self-assessment program. That report contains additional information on the initial development of the program, including training of participants and development of technique and judgment criteria.

At the end of Test Condition 2, Niagara Mohawk decided to continue with a modified form of the self-assessment program. The scope of this continued program was broadened to include the operation of Unit 1, as well as 2. This phase of the program was to continue through the Commercial Operation declaration for Unit 2. Unit 2 was declared available for Commercial Operation on March 11, 1988. This report covers an assessment period from October 1987 through March 1988. The original Self-Appraisal Team was slightly restructured and certain management personnel were shifted.

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Recordkeeping practices of the original program were modified to streamline the operation of the program.

Each Self-Appraisal Team member was knowledgeable in the subject area of his observations and review, including the manner in which the equipment, systems and unit operated and how the various groups and departments interacted. Thus, each member was already familiar with the workings of the areas to which he had been assigned and could focus on problem-solving. One of the strong points of the self-assessment process was that it encouraged team members, during the course of the program, to raise matters based upon previous experience.

The instructions from Niagara Mohawk senior management were to be self-critical. This was the principal guideline utilized by the Self-Appraisal Team members.

As with the original report, only a modest effort has been made to describe some of Niagara Mohawk's strengths. No effort has been made to present a balanced picture of strengths and weaknesses. Areas judged to be satisfactory or performing well could, of course, still stand improvement. These areas are identified in the report.

Overall, the self-assessment program represents a significant corporate commitment by the Niagara Mohawk Power Corporation, its senior management, and program participants. Hundreds of hours were spent by the Self-Appraisal Team members in observations, evaluations, and collegial discussions during the course of the program. As noted, these individuals were Superintendents and Department Heads and were also playing major roles in the operation of the units. Additional time was devoted to preparation of reports. Many hours were spent by senior management in performing their Management Oversight Committee duties. In addition, many hours were required by other senior individuals to respond to the observations of the Self-Appraisal Team and to take and supervise corrective action.

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4. CONDUCT OF CONTINUING PROGRAM

While the Self-Appraisal Team covered the entire range of management activities associated with operations of a nuclear power plant, it focused on areas which were known to be possible weaknesses. Those areas were identified by past experience at other nuclear power plants, previous inspections, the Institute of Nuclear Power Operation's evaluations, the Systematic Assessment of Licensee Performance Reports, the observations of management consultants, and the results of the first phase of the program.

During the initial appraisal period a number of issues and concerns were specifically evaluated and discussed in the September report. During the present assessment period, these matters were included in the appropriate functional area. To a certain extent, the Self-Appraisal Team based the intensity of its observations in these areas on the results of the first assessment. In addition, the Self-Appraisal Team did not continue to separately evaluate the areas of Security and Emergency Planning since previous internal and external assessments had indicated no major problems in these areas. Surveillance activities were assessed as part of plant operations.

The principal input to the self-assessment process continued to be actual observations by the team members. The team generally met once a week to review and discuss these observations. The Self-Appraisal Team meetings were useful in bringing problems to the immediate attention of management individuals who could implement prompt corrective action. During these meetings the team also reviewed the status of on-going activities related to the recommendations of the earlier assessment. In addition, they evaluated issues identified by the Management Oversight Committee. The Team or its Chairman also met several times with the Management Oversight Committee to review the Team's activities and the status of open items.

The Management Oversight Committee has continued to stress that the Self-Appraisal Team not limit itself to matters which could be resolved during the course of the program. The Management Oversight Committee also emphasized that the Self-Appraisal Team should not avoid matters which it might not be able to resolve on its own level.

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During this period the Self-Appraisal Team did not identify any major new problem areas. In following up on the earlier recommendations, the Team found continuing symptoms of some previously identified problems. These problems are discussed in Section 5 of this report. The team also modified or expanded the scope of some of the original recommendations. The status of the original recommendations is provided in Section 6 of this report. The Team also generated several new recommendations, which are discussed throughout Section 5 and specifically listed in Section 7 of this report.

5. UPDATE OF RESULTS BY TOPIC

The overall evaluation of the Self-Appraisal Team is that Niagara Mohawk has performed reasonably well during the assessment period, with a number of strengths and some weaknesses. This section primarily focuses on problems and weaknesses. This section is organized into Parts A through H which discuss the following areas:

- A. Unit 1 Plant Operations
- B. Unit 2 Plant Operations
- C. Radiological Controls
- D. Maintenance
- E. Licensing
- F. Training
- G. Engineering Support
- H. Assurance of Quality

5A. UNIT 1 PLANT OPERATIONS

Near the beginning of this assessment period, Unit 1 experienced an automatic shutdown as a result of spurious instrument signals. This shutdown occurred after a very long continuous run of sustained power operation. After routine maintenance, the unit was returned to normal operation. On December 7 an automatic scram occurred as a result of a problem with the feedwater control valves. After corrective maintenance the unit was returned to normal operation. On December 19 the unit experienced another shutdown as a result of severe vibration in the feedwater system.

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This event resulted in an extended outage period for investigation, maintenance and repair. During this outage, deficiencies in the Inservice Inspection Program were identified that necessitated additional inspection and an extension of the outage. Niagara Mohawk, therefore, decided in January to begin the Unit 1 refueling outage (originally scheduled to begin in March).

Performance observations by Self-Appraisal Team members indicated that plant operation during the assessment period was satisfactory. Evaluation of the automatic shutdown events indicated that the plant operators performed satisfactorily. There were several areas, however, that were identified as requiring additional attention:

1. Outage Management/Planning
2. Housekeeping
3. Teamwork and Operator Professionalism

Outage Management

Although the Self-Appraisal Team felt that outage management has improved over previous years, there is room for further improvement. The rescheduling of the refueling outage did put considerable strain on outage planning. The nuclear division reorganization will provide better focus for outage management and planning by making these activities a primary function of dedicated division level integrated department. The primary source of improvement in conducting the outage was the formation of the Work Control Center. The Work Control Center was established to allow for better planning, coordination, and tracking of outage activities. It is staffed by planners from each department and is managed by the Unit 1 Outage Coordinator. Operation of the Work Control Center during the 1988 refueling outage has improved all facets of outage management and also has had the side effect of promoting teamwork among the individual departments.

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In conjunction with the 1988 refueling outage, an Institute of Nuclear Power Operations Outage Assist visit was also scheduled. This visit provided Niagara Mohawk personnel the opportunity to obtain an impartial review of outage preparation and, during the second phase of the visit, actual outage activities. Several recommendations were made by the Institute of Nuclear Power Operations which will be considered by the Nuclear Projects Department in formulating the outage management organization.

Housekeeping

Self-Appraisal Team members have noted improvements in housekeeping over the past year, however, the level of improvement has been inconsistent. The Team attributes the general improvement in housekeeping to an increase in management involvement. In order to improve the consistency of performance, Unit 1 is in the process of implementing a program that has worked well at Unit 2. This involves dividing the plant into specified zones assigned to individual supervisors. The assigned supervisor is responsible for maintaining the housekeeping in the zone by making frequent tours and assigning tasks to departments as required. Emphasis is placed on cleanup after a job by the department doing the work. To facilitate cleanup after the job, clean-up stations are being established at areas around the station. Cleaning equipment is available at these stations for individuals to use on the job. Additionally, the Self Appraisal Team recommends providing permanent storage racks for specialty tools, tool carts, and other portable equipment which are permanently stored in the plant.

Involving supervisors directly in the housekeeping program will assist in developing a teamwork approach to the problem and also create a pride of ownership attitude in the station.

In addition, the floor painting program will be continued and expanded to include equipment, walls, structures, etc. This will also help create pride in ownership and improve morale at the station.

Teamwork and Operator Professionalism

Unit 1 operators have a poor attitude regarding regulatory requirements, particularly related to continued training. These problems are being addressed in several ways:

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1. Selected operations personnel from both units attended an Institute of Nuclear Power Operations workshop on developing a Code of Ethics for operators. Subsequently, Niagara Mohawk established a team of operators from both units to develop a Code of Ethics. Codes of Ethics are being developed throughout the nuclear industry in order to make more visible the high standards and excellence which operators are expected to achieve. It is meant to encourage "pride of ownership" of the operator position and encourage all personnel to perform professionally and to the best of their ability.
2. Niagara Mohawk has formed a team composed of operators and Training Department personnel to address operators' attitudes towards the ongoing training program. This team is expected to develop recommendations to improve the quality of the requalification program, to give operators an ownership attitude toward the requalification program, and to create a teamwork attitude between Operations and Training.
3. An INPO Operations Assist visit is scheduled for June, 1988. The Unit 1 Operations Superintendent and at least one operator will be included on this INPO team.

The focus of this visit will be as follows:

- ° Upgrading Operator/Shift Supervisor Professionalism.
- ° Methods to build teamwork to promote better interdepartment communications and productivity.
- ° Need to build confidence in the INPO process and credibility of its people and recommendations.
- ° Assuring that operators have the right tools to achieve excellent performance.
- ° The experience of other utilities in successfully integrating operations and training.

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5B. UNIT 2 PLANT OPERATIONS

During this assessment period, Unit 2 completed the Power Ascension Test Program and the 100-hour warranty run. Unit 2 was declared available for Commercial Operation on March 11, 1988. In general, the Power Ascension Test Program was successful from both a programmatic and technical standpoint. During this time the plant was operated in a safe and conservative manner. Specific observations were made covering the Test Program and plant operations.

Test Program

Adequate administrative procedures and controls, and adherence thereto, provided for a well organized and safe testing program. Communication and coordination between test and operations personnel were judged as excellent as evidenced by thorough test briefings, well conducted major tests and the degree of preparedness of operators to the planned transients. In general, test procedures were well written and accurate. The test program was a valuable learning experience for the Operations staff. The opportunities to respond to actual plant transients helped the operators build confidence in their own abilities and the plant's design. As expected, however, a number of design problems were identified during the test program. To date three of the significant problems remain unresolved.

1. Feedwater Piping Thermal Stresses

High feedwater system stresses have occurred. This has happened under two conditions. The initial problem of stratification occurred when hot cleanup system water backflowed into the cold feedwater system. A similar high stress situation can occur when cold feedwater is injected into hot feedwater pipes following a plant shutdown. In either case, high stress conditions occur in the feedwater system.

During the test program, underdesigned pipe couplings were replaced and restrictions were imposed on operation of the clean-up system to require full rejection at low power levels. These restrictions are still in effect. The long term solution is to provide a low flow feedwater bypass line which will provide proper mixing with clean-up return water to prevent this condition during low power operating conditions.

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2. Reactor Power Oscillation/APRM Swinging

This phenomenon has been attributed to a combination of neutron "noise" and bi-stable recirculation flow oscillation. This results in an undesirable variation in APRM indication requiring increased vigilance by Control Room operators to ensure reactor power is maintained within the licensed rating. This problem is still under evaluation and a plan for resolution is expected in 1988.

3. Electronic Hydraulic Control (EHC) Piping Vibration

This condition exists during turbine warm-up and rolling off turning gear events and at high power conditions. This resulted in a pipe failure and plant shutdown. Stress measuring instrumentation was installed, results of which are being evaluated to determine whether piping design changes may be necessary.

At times the execution of the test program lacked coordination among the departments involved. Maintenance and surveillance activities often interfered with the test program due to inadequate planning and scheduling. Technical problems were not always readily or clearly defined for resolution. The process did improve over the course of the Test Program. The Station Superintendent conducted daily management meetings to address schedular interferences and technical problems. Decisions on priorities and technical resolutions were made during these meetings so that all departments were working in concert. In addition, daily work coordination meetings, chaired by Operations supervision, worked out the details for day-to-day coordination of activities.

Operations

Considerable attention was given to Control Room atmosphere and activities. Observations during this period indicate that activity and work load levels in the Control Room have decreased considerably, and that formality and conduct have improved.

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Increased attention by Station Management and shift personnel to lower the activity levels in the Control Room have been successful. While, at times during the test program, a significant number of personnel were in the Control Room, noise level and extraneous conversation were minimized.

Shift turnovers were observed by Operations supervision on many occasions. Verbal communications, panel walkdowns and written turnover documentation have been observed to be satisfactory. The Station Shift Supervisor turnover sheets have been modified to enhance pertinent information exchange. Several problems have been noted with activities involving equipment tagouts with respect to control of work activities. A department instruction is being developed by shift personnel to strengthen and standardize tagout practices among all shifts. In addition, the Self Appraisal Team recommends developing a method to assure that the Station Shift Supervisor is aware of the on-duty personnel who satisfy the Technical Specification requirements for minimum shift staffing.

Improved operator response to Control Room annunciators has been observed. Procedural changes were implemented to provide better direction and clarification of requirements. While there have been some instances of procedural violations, operators' attitude toward compliance with procedures is considered good as evidenced by questions they raise, suggestions made for changes, and the temporary change notices submitted.

The volume and control of work through the Control Room continues to be a concern. Lack of proper review and control of work items resulted in several Engineered Safety Features actuation events and two reactor shutdowns from power. Although maintenance activities and surveillance tests are screened and, for the most part, prescheduled and approved outside the Control Room, the work activities still must pass through the Control Room Operator and the Station Shift Supervisor. Several actions have been or are being taken to address this concern. Planning and coordination of jobs involving common equipment has improved through the daily work coordination meetings. Other departments have been instructed to review their procedures, and eliminate, where possible, requirements for Control Room personnel signatures. An extra Control Room Operator is being stationed in the Control Room during the day shift to screen requests requiring approval by duty personnel. This individual also attends the daily work coordination meeting and is familiar with the "plan of the day".

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The total number of reportable events experienced in the first seven months since initial criticality is somewhat less than the median for thirteen other recent Boiler Water Reactors. For Unit 2 the most significant common threads have been the number of personnel errors and the number of missed surveillances. Although both of these have reduced during this assessment period, the trend is higher than desirable, and there has been a recent incident of repeat error. Niagara Mohawk is addressing this concern by adopting the Institute of Nuclear Power Operations root cause analysis method known as Human Performance Evaluation System. This will be discussed in Section 5F, Training.

5C. RADIOLOGICAL CONTROLS

The Self-Appraisal Team considers the overall site radiological protection program to be adequate but requiring additional attention in several areas, particularly personnel monitoring and radiological work practices. These activities were consistently found to be lacking during plant tours by station staff members as well as during observations by external organizations. A number of improvements have been made in technique, processes, procedures, and training to upgrade personnel performance; these actions are detailed under the program discussions that follow.

Personnel Monitoring

Improved compliance with personnel monitoring requirements has been observed during this period. These improvements are the result of several factors:

1. Creation of an improved access point at Unit 1.
2. Placement of Friskall units at exits from restricted areas of the station.
3. Including a frisking practical demonstration in appropriate training programs.

Niagara Mohawk also recognizes that personnel attitudes and actions need improvement and has formed a multi-discipline team to address this concern. This team will evaluate personnel frisking deficiencies and recommend appropriate corrective measures.

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Dosimetry Program

During this period, TLDs replaced film badges as official records. Also, the proper placement of personal dosimetry was emphasized during this period through supervisory tours, training, and postings throughout the station. Niagara Mohawk is currently evaluating the purchase of a new dosimetry badge holder to decrease loss of dosimetry and provide for consistency of placement between TLDs and Self-Reading Pocket dosimeters.

Radiological Work Practices

Niagara Mohawk has instituted several actions to improve radiological work practices, including:

1. Establishing radiation protection performance goals for all departments, including the use of these goals as a performance measurement tool for department supervisors.
2. Including practice practical demonstrations in appropriate training programs involving hands on use of detection equipment, protective clothing, and other radiological controls.
3. Reviewing the Performance Monitoring Report to identify trends in radiological work practices.

Radiation Protection Program

Niagara Mohawk believes additional improvements in day-to-day radiation protection program activities can result by increased awareness and improved communication. Activities currently underway in this area include:

1. Preparation of a Radiation Protection Manual to be provided to all site employees.
2. Coordination, planning and staging of radiation protection activities through other site department planners at the Unit 1 Work Control Center. (A similar process is planned for the upcoming Unit 2 outage.)

3. Establishment of a "Hot Particle" program that identifies "Hot Particle" areas in the station and describes effective measures to reduce skin contamination.

Respiratory Protection

Improvements have been noticed in the use and control of respiratory protection equipment as a result of increased attention regarding this issue in General Employee Training.

Additional improvement in the area of internal exposure control is desired. Current activities being undertaken include:

1. Increasing the use of personal air samplers for the collection of breathing zone air samples.
2. Improving the analysis of whole body count data to better differentiate between external contamination and actual uptakes.

5D. MAINTENANCE

Self-Appraisal Team observations during this period indicate that maintenance activities have been satisfactory, however, improvements can be made in the areas of organization, conduct of maintenance, material management and planning. Significant observations in these areas are discussed in the following paragraphs.

Organization

Since the previous report, additional supervisors have been assigned to the Mechanical, Electrical, Instrumentation and Control and Building and Grounds Departments. The purpose of these assignments is to increase the supervision and direct observation of crew performance, and thus, improve overall maintenance effectiveness and accountability.

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For the Instrumentation and Control Department, additional planning positions have been assigned to bring the Department up to a staffing equivalent to the Electrical and Mechanical Maintenance Departments. These assignments are intended to improve the planning for the Instrumentation and Control Department.

Concerns have been raised that the primary maintenance disciplines should report to one Superintendent. In response, Niagara Mohawk is in the process of implementing an organization which will improve the accountability of the maintenance disciplines by having Instrumentation and Control, Electrical, Mechanical, and Building and Grounds report to a single maintenance superintendent for each unit.

In addition, the new organization will have increased Site Engineering support including system engineers. In the long term, it is anticipated that the day-to-day technical support provided by the expanded Site Engineering staff will improve the performance of the Maintenance Department by solving system problems at an early stage, improving the analysis (root cause) of repeated or serious problems, and improving the maintenance practices on a system basis.

Conduct of Maintenance

Plant material condition continues to be good, with few leaks and improved performance of rotating equipment. However, an increase in unplanned safety system actuations has been identified. To assure work activities do not initiate these events, plant impact of work activities is being assessed using Operations' input.

The Self-Appraisal Team has noted that the ratio of preventive maintenance to corrective maintenance work hours is low compared to industry averages. Two factors for this low ratio have been identified:

1. Work hours have been incorrectly charged to corrective maintenance.
2. Certain preventive maintenance activities are completed within the "corrective maintenance administrative program.

This accounting system will be corrected so this ratio will be a reliable indication of maintenance performance.

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Maintenance has commenced a program to improve the human factors aspects of maintenance procedures. This program involves using mechanics, electricians and technicians in the procedure review cycle. In addition, procedural control of temporary change notices has been improved by reducing the number of controlled copy holders to only those personnel required to have the procedure.

Self-Appraisal Team observations identified needed improvements in the use of controlled drawings in the field. Additional training has been conducted in the areas of verifying prints and establishing controls. An additional problem has occurred due to the vendor manual upgrade program; the reindexing has caused a temporary situation where two index systems are being used, making it more difficult for the user to locate a manual. After completion of the vendor manual program, one index will be utilized at the site.

Material Management

As a final step, organizational responsibilities and interfaces are being reevaluated to ensure that the necessary procedural controls and communication channels are in place to provide assurance that the quality of material is maintained and documented from the point of material request through issue and installation.

Since the previous report, Nuclear Engineering and Quality Assurance have identified problems with the commercial grade dedication of materials. In addition, Quality Assurance identified concerns with previously established controls on commercial grade material, and placed a stop work order on this material. This necessitated increased Quality Assurance and Engineering involvement on the issuance of material to assure material was acceptable for use in safety related systems. As a result, an improved procedure has been implemented to establish requirements for all spare and replacement parts, including commercial grade material. In addition, the Self Appraisal Team recommends that the Unit 2 "Q-List" be revised to a system/component level incorporating Appendix B determinations.

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Self-Appraisal Team observations identified a need to improve inventory controls. Identified problems involved the accuracy of quantities on hand and establishment of minimum and reorder quantities. These problems are being resolved in a long term program to verify the inventory accuracy and to establish master parts lists with appropriate minimum and reorder quantities and technical requirements including safety classification of parts.

Planning

As mentioned previously, a Work Control Center has been established at Unit 1 and will be established at Unit 2 in the near future. The Work Control Center has resulted in improved coordination of work at Unit 1. The Self-Appraisal Team, however, has recommended that the responsibilities of this group be more clearly defined as part of the reorganization. Furthermore, the Self-Appraisal Team has indicated that additional improvements are required in the verification of parts availability for modifications.

5E. LICENSING

During this assessment period, Licensing took action to improve its responsiveness to Operations and Engineering. Additional licensing engineers were assigned to prepare safety evaluations for proposed modifications, to develop Technical Specification interpretations and to determine safety classification for components and parts. The site licensing staff was augmented to better coordinate site licensing activities. Although licensing activities during this period were considered satisfactory, several areas needing improvement were identified, including:

1. Technical capability of licensing personnel.
2. Clarification of roles and responsibilities between licensing and other groups.
3. Implementation of the Nuclear Division Commitment Tracking System.
4. Identification and scheduling of requests for regulatory action, including change to licenses and Technical Specification, regulation exemptions and relief requests.

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Technical Capability

Most of the licensing engineers added during this period have been consultants contracted for a limited period to replace two experienced individuals who transferred to other groups. The Self-Appraisal Team recommends that additional permanent Niagara Mohawk personnel with significant technical expertise be added to the licensing staff.

Roles and Responsibilities

Clarification of roles and responsibilities needs to be addressed as part of the current planning for the Nuclear Division reorganization. Within the Niagara Mohawk licensing organization, the Self-Appraisal Team has noted a need for better coordination between groups preparing safety evaluations and regulatory compliance functions such as technical specifications interpretations. The Self-Appraisal Team has noted that some requests for licensing changes have limited technical justification and are primarily motivated by schedular or operational convenience factors. Providing the Licensing group with a better definition of roles and responsibilities may promote better resolution of these situations.

Commitment Management

A computerized commitment tracking system has been developed for the Nuclear Division. This system provides a tool to enable managers to better manage the resources in making and meeting commitments. Another action recommended to improve commitment management is the development of effective procedures and training of personnel to implement the system including proper allocation of resources and prioritization of commitments as they are made.

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Scheduling

The Self-Appraisal Team has observed that there have been a number of instances where Niagara Mohawk has failed to expeditiously identify the need for regulatory action or take into account a reasonable period for such review and approval. When the need for regulatory action is not identified sufficiently before it is required, submittals tend to be rushed to meet schedule deadlines, and safety evaluations may not contain the appropriate amount of details or technical justification. The Self-Appraisal Team recommends that Niagara Mohawk develop a standardized method of establishing priority and schedule to assure that requests for regulatory action are consistent with plant needs.

5F. TRAINING

During this assessment period, the Training Department acted satisfactorily to support specific training needs of other departments, however, a number of significant problems were identified in the administration of training.

As a result of observations, the Self Appraisal Team made a general recommendation that plant departments schedule on-the-job training for those tasks which are infrequently performed and are critical to plant performance.

A considerable effort was directed at training in radiological work practices. Plant personnel were trained in the use of the new Friskall personal monitoring devices. Job disciplines at Unit 1 received "Hot Particle" training prior to the refueling outage, while Radiation Protection technicians received training for effective "Hot Particle" control. Radiation Protection technicians and a number of other plant personnel were also trained in contamination confinement measures. Finally, personnel will be completing practical exercises in frisking and donning/removal of protective clothing in annual Radiation Protection training.

Root cause evaluation is another area that received special training attention. In late 1987 the Institute of Nuclear Power Operations course on the Human Performance Evaluation System was presented. Approximately half of the technical support group attended the course. The response was very positive and course participants felt that the use of this system could be

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very beneficial in identifying root causes more accurately. More accurate problem identification will enable training resources to be more focused. A second session of the Human Performance Evaluation System course is tentatively scheduled for the third quarter of 1988. The Self Appraisal Team recommends that this course be included in the training program for technical support personnel.

An NRC inspection in February 1988 identified attendance and documentation problems in operator requalification training. The Nuclear Training Procedure provided that participants could attend make-up training within the year, but this make-up provision extended beyond the license renewal application dates of several license holders. Further, several license holders did not attend all the required training sessions within the requalification year.

Subsequent to the NRC inspection, an audit of the Licensed Operator Retraining and Continuing Training program was conducted by Quality Assurance at the request of plant management to verify our procedures comply with 10CFR50.55's current requirements. The auditors also reviewed licensed operator training records and interviewed fifty-one license holders. Although the final audit report has not yet been issued, training has been provided with the Audit Observations which identify thirteen (13) concerns as listed below.

1. Training procedures lack definition of how minimum requalification training requirements are established.
2. Procedures lack responsibilities and requirements for license application or renewal application using form NRC-398.
3. Procedures do not address how active performance of operator functions is monitored and recorded, and there is no procedural definition on control of "active" vs "inactive" licenses.
4. Nuclear Training Procedure 11 "Licensed Operator Retraining and Continuing Training" lacks clarity and consistency in referring to "Training Program", "Requalification Cycle", and "Annual Requalification Period". Terminology needs to be applied consistently, agree with NRC terminology and should be defined in Nuclear Training Procedure 11.

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5. The acceptability of maintaining "Permanently Inactive" licenses with no intention to reactivate them is indeterminate.
6. There is no provision to reactivate a license for an individual returning from disability leave or other long term absence from shift duties.
7. Licensed personnel were not specifically informed by formal training means of changes to 10CFR55 and the implementation guidelines of NUREG-1021 and NUREG 1262.
8. Six Shift Technical Advisor (STA) training files do not possess any written examinations for the STA on-the-job training requirements for systems 351-355.
9. There are no means available of verifying that the STA on-the-job training is either a one-time-only requirement or part of a continuous process of a two-year requalification cycle.
10. Contrary to the requirements of NTP-10 "Training of Licensed Operator Candidates", which requires a quarterly audit of the training manual, only one (1) review was performed for the 87-01 (3/9/87 - 12/18/87) Nine Mile Point Unit 1 license class.
11. Contrary to the requirements of Nuclear Training Instruction (NTI) 4.4.6 Revision 1, "Implementation of OJT", license class candidates are not required to take exams for all OJT systems nor is it delineated which ones require written examinations. (NOTE: this observation deals with the same concern as observation #8).
12. NTI 4.5.3 Revision 0, "Simulator Configuration Management" refers to a hard copy modification tracking system when in fact a computer based system is being used.
13. As required by NTI 4.1 Revision 1, "Training System Development - Analysis" a job and task analysis has not been performed for requalification of Senior Reactor Operators and Reactor Operators for Nine Mile Point 1 and 2.

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In response to the NRC inspection and the Quality Assurance Audit, the training department has taken or is taking the following actions to address the resultant concerns:

1. A draft revision to NTP-11 "Licensed Operator Retraining and Continuing Training" has been written to address the related procedural concerns which were identified. Final approval of the revised procedure is expected by May 31, 1988.
2. A draft revision to NTP-10 "Training of Licensed Operator Candidates" has been written to address the related procedural concerns which were identified. Final approval of this revised procedure is expected by May 31, 1988.
3. A Nuclear Training Instruction (NTI 5.0) detailing the process necessary to correctly complete and process the License Application, form NRC-398, has been written. Final approval of this instruction is expected by May 31, 1988.
4. The General Superintendent-Nuclear has directed that all department heads who have staff license holders reporting to them assess the continued need of these individuals to hold their licenses.
5. A training module is being developed to train all licensed operators on 10CFR55, and applicable portions of NUREG 1021 and NUREG 1262. Training should be completed by July 15, 1988.
6. The License Operator Candidate and Shift Technical Advisor on-the-job training manuals will be reviewed by July 1, 1988 to delineate those tasks for which written examinations are not required.
7. The operations training supervisors have been reminded of their responsibility to ensure that all procedural requirements, including the quarterly audit of training manuals, are met.

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8. NTI 4.5.3 will be revised by 8/1/88 to accurately reflect the computer based system that is being used to track the incorporation of plant modifications into the simulator.
9. An Operator Requalification Training Team has been formed to review the present requalification training program. The team, which is composed of plant operations personnel and training personnel, has met several times. It will be making recommendations for program improvement which will likely involve revisions to the existing job analysis. An interim report is scheduled to be released mid May 1988 with a final report to follow in July 1988. The training program will be modified in accordance with the recommendations of this committee as approved by site management.
10. The Nuclear Training Department is in the process of establishing a computerized system to maintain licensed operator training records. This project will be completed by the end of the calendar year and will facilitate the tracking of the requalification program, thus helping to ensure that all requirements are completed in accordance with 10CFR55 and NTP-11.

5G. ENGINEERING SUPPORT

The effectiveness of Engineering's support of the power ascension program at Unit 2 and plant operation at Unit 1 has been noted as a matter needing attention by the Self-Appraisal Team, INPO and the NRC. The areas of concern centered around communications and teamwork, quality of engineering support, and modification planning and implementation. Several actions have been taken that have improved Engineering's effectiveness in these areas. While the overall performance of Engineering support is considered to be satisfactory and improving, it is also recognized that additional attention is required in some areas. Actions taken and areas for improvement are detailed in the following paragraphs.

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Communication and Teamwork

At Unit 2, specific individuals in both Engineering and Operations were designated to provide direct communication (Engineering and Operations Interface Coordinators). This has provided a direct and formal means for Engineering to determine and understand plant problems including assuring the proper prioritization of work. The Self-Appraisal Team recommends that this interface become a permanent function for both Unit 1 and 2 through incorporation into the Site Engineering group.

To improve communications and provide for earlier identification of problems, Unit 2 Engineering assigned shift engineers to actively interface with Operations and Maintenance and to aggressively seek out plant problems. A significant benefit of this program has been more timely resolution of technical problems and improved communications between Engineering and the first line supervisors in Operations and Maintenance. It has improved Engineering's understanding of plant status and has assisted Engineering management in providing a more timely response to plant problems without having to wait for notification through written communications or periodic meetings. While this program of shift coverage ended with commercial operation, an engineer will personally interface with Operations and Maintenance first line supervision twice daily and report any identified problems or concerns to Engineering management. In addition, shift coverage will be used as necessary during plant outages until such time as the Site Engineering group is enhanced.

Due to the forced outage at Unit 1 from the feedwater transient and the Inservice Inspection Program problems, Niagara Mohawk decided to begin the Unit 1 1988 refueling outage earlier than planned. Unit 1 Engineering has responded by providing more site support. Assistant Managers from the design organization, or their designees, currently man the Work Control Center on a daily basis to help resolve Engineering problems. In addition, a Task Manager from Engineering has been assigned to the Inservice Inspection Program problem resolution.

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To provide timely resolution of significant plant problems, a task management approach was developed during the Unit 2 power ascension program. This program resulted in excellent teamwork between Engineering and Operations. Several significant Unit 2 problems such as the feedwater system Grayloc couplings were resolved in a timely manner using this approach. It was then successfully applied at Unit 1 in managing the evaluation and repairs caused by the Feedwater Transient experienced in December 1987. While the formal task management program was established to support power ascension testing, the Self-Appraisal Team recommends that the task management team approach to solving plant problems be stressed and utilized on a continuing basis for the support of both units.

While the above actions have significantly improved communications, a lack of effective teamwork still continues to hamper the interface between Engineering and Operations. Operations is reluctant to involve Engineering in a plant problem at an early stage until all internal efforts have been exhausted to resolve it. In turn, Engineering is reluctant to aggressively pursue plant problems until requested to do so by Operations. Too often there is a tendency to assign blame rather than work as a team to resolve problems. Early identification of interface problems and rapid elevation to management for attention is important. Once notified, management has been effective in initiating a team approach to resolving problems. In addition, a Site Engineering group is being expanded as part of the Nuclear Division reorganization. This group will provide day-to-day support of plant personnel and will include system engineers who will work in the field on a daily basis with their Operations counterparts in the resolution of problems. This should significantly contribute to team building efforts and early and aggressive involvement by Engineering in plant problem resolution and analysis.

Quality of Engineering Support

At Unit 2, the position of Operations Interface Coordinator was added to the Engineering Review Committee which performs peer review of conceptual design prior to initiation of final design. This allowed Operations needs and perspectives to be factored into design at an early stage and has improved the quality of the final design packages. The Self-Appraisal Team recommends that

the peer review process and operational involvement in the conceptual design reviews be continued and incorporated into the design modification process for both units. In addition, the incorporation of systems engineers into the Site Engineering group is expected to significantly improve the communication between Engineering and Operations as far as determining acceptable conceptual design at the front end of the design process. The Self Appraisal Team has noted some ALARA review deficiencies for certain modifications and recommends that ALARA reviews be included for all modifications authorized by 50.59 checklist evaluations.

Also at Unit 2, Engineering has established a comprehensive punchlist of engineering action items which prioritizes all in-house work. This punchlist is updated on a daily basis, and is formally reviewed by the Engineering managers at least twice per week to ensure that proper emphasis and progress is being made in accordance with established priorities. In addition, the Operations Interface Coordinator attends these meetings and assists in setting priorities and work schedules. Licensing also attends these meetings and has action items on the list which are critical to the support of engineering activities. The Self-Appraisal Team recommends the establishment of a tracking and feedback system within the Site Engineering group to serve both units.

Engineering management has emphasized the need for design engineers to perform field walkdowns of proposed designs to assure their feasibility of implementation and to also obtain input from the installation organizations prior to design finalization. This is being accomplished through a team approach to the design modification process and has become formalized in the modification procedures. This approach contributes to the quality of the final design packages and minimizes design changes during the installation phase of the modification.

In 1987 Niagara Mohawk became aware of problems with the effective implementation of the Inservice Inspection Program and our commitment covering the first ten year cycle. Since the initial discovery of this problem, responsibilities for the Inservice Inspection Program have been divided among Nuclear Engineering & Licensing, Quality Assurance and other groups in Nuclear Generation. A program manager has been assigned to develop the procedures and organization necessary to effectively manage the Inservice Inspection Programs of both units.

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Modification Planning and Implementation

A significant step toward improvement in the planning and implementation of plant modifications has been taken by establishing a modification team with the modification engineer as the team leader. This team approach is implemented early on in the modification process prior to initiation of conceptual design. The team includes all parties who will be involved in the modification process. This team approach continues throughout the duration of the modification until final closeout is achieved. The major problems with this policy have been sporadic attendance and uneven feedback of team members. The Self-Appraisal Team recommends that Niagara Mohawk establish effective measures to improve the participation of appropriate organizations in these modification teams.

A continuing problem with the modification process is the need for early identification and timely prioritization of modifications to be performed in scheduled outages. The modifications to be performed during the Unit 2 May outage were identified late. The modification process for the Unit 2 May outage was also adversely affected by confusion as to which organization had lead responsibility for outage modification planning. As part of the Nuclear Division reorganization, a new group has been formed having overall responsibility and authority to coordinate the planning and scheduling of plant outage work. The Self-Appraisal Team recommends that this group establish effective measures to assure early identification of outage modifications and to minimize shifting of priorities.

5H. ASSURANCE OF QUALITY

The Assurance of Quality Section, as defined in recent Systematic Assessment of Licensee Performance reports, relates to management involvement and control in assuring quality of work conducted in all areas and activities, not simply the Quality Assurance organization. Management involvement and control was assessed within the other functional areas. This section discusses additional observations related to Quality Assurance activities in this functional area.

The corrective action process has improved during this assessment. Under the direction of the Long-Term Commitment Advisory Committee, the Root Cause Program procedure has been revised to make the analysis more effective. Root cause analysis and problem trending are ongoing and improving in effectiveness. There has been a substantial increase in the use of root cause investigations going through the Site Operations Review Committee. Further, the Root Cause Analysis procedure is being updated to address Human Performance Evaluations.

Since September, 1987, Quality Assurance has developed the two quarterly trend reports and a semiannual trend report covering the performance of the Nuclear Division. As a result of previous Self-Appraisal Team finding 6.32 an interaction trend analysis has been developed. Quality Assurance has transmitted the findings to the various department heads, met with management and discussed the significant issues. Corrective Actions were identified and discussed.

Performance Indicators

Quality performance indicators have been developed within the Quality Assurance Department. These indicators relate to the results of the inspection, surveillance and audit functions. Quality performance indicators include reporting the results in terms of the percent acceptable of the total observations made. These are included in monthly reports to senior management, and the semi annual trend reports previously described. These Performance indicators provide a simple means to assess potential trends during the period.

Effectiveness of Quality Assurance Activities

The Quality Assurance surveillance program and associated reports and results were assessed for responsiveness, timeliness, and effectiveness. The conclusion is that the surveillance program continues to be well received by most site personnel. Surveillance report open items are generally easy to respond to and the average response time is less than 16 days. It is the Self Appraisal Team's assessment that site personnel much prefer to respond to surveillance reports than Corrective Action requests. Therefore, a prompt and responsive answer is normally provided.

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A Self Appraisal Team member assessed the effectiveness of Quality Assurance Audit and Corrective Actions. The overall assessment was that Quality Assurance effectiveness was improving, and that communications and teamwork were also improving. Instances of better support in closing recent Corrective Action Requests and participating in problem resolutions have been noted. Quality Assurance is being used more as a management tool to search out information and supply the research manpower. Examples of this are (1) closing Site Operations Review Committee open items, (2) surveillance requests on housekeeping, Inservice Inspection and Training, and (3) follow-up items needing research from Nuclear Regulatory Commission identified concerns.

Quality Assurance is continuing to provide more information through inspection, surveillance and audit. For example, inspections and observations now identify the number of attributes inspected/observed versus the number of attributes found satisfactory as part of performance indicators.

Quality Assurance Monitoring and Oversight

The Quality Assurance department has strengthened its staff and the technical capabilities of personnel have increased. The Quality Assurance Department has installed its Unit 2 Quality Surveillance Program at Unit 1. Quality Assurance has continued to retain its Quality First Program. During the period a new Quality Assurance Non-Destructive Examination group has been authorized. The group will be responsible to perform In-Service Inspection functions, including other Nondestructive Exams.

Procedure Adequacy and Compliance

The Self Appraisal Team as a group was assigned the duty to assess procedures. The Self Appraisal Team used observation of personnel and reports from the Quality Assurance Surveillance Program to determine procedure compliance and adequacy. The Quality Assurance Surveillance Program observes activities of personnel in the plant performing their daily tasks. This surveillance program measures the performance against preestablished checklists.

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During the period from September through March the overall rating for procedure compliance was above 92%. The ratings provide an indication of performance. Further action was taken in problem identification and resolution.

Management Effectiveness

The Self-Appraisal Team assessed the ineffectiveness of Management efforts to correct longstanding problems. The team identified four possible reasons for this problem and submitted recommendations to the Oversight committee to address these reasons:

Concern:

Lack of personnel accountability

Possible Solutions:

1. Nuclear Division Reorganization (functional roles and responsibilities defined).
 - a) Need to publish organization schedule. (with dates)
 - b) Need to unitize and reorganize as expeditiously as possible with the Maintenance, Instrumentation and Control and Radiation Protection departments first and if this has to be done in phases, so be it.
 - c) Once organization is in place, make sure it is working.
2. Discussion with Brotherhood on union personnel evaluations ("team building effect").
 - a) We need to measure our productivity. Define a certain level of responsibility from highest to the lowest level.
 - b) Rewrite union job specifications - need to become competitive.
3. Ensure Chief Shift Operators receive the same kind of chief training as the maintenance department presently receives.

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Concern:

Attitude and morale.

Possible Solutions:

1. Development of plant standards of performance.
2. Portions of the annual budget should be set aside for people related issues.
3. Need an incentive program.
4. Need to improve communication/education system.

Concern:

Lack of senior management direction and vision as illustrated by the absence of long range strategies.

Possible Solutions:

1. Complete Nuclear Generation Business Plan
 - a) Define each department's action plan
2. Long-range strategy/philosophy
3. Provide necessary tools, environment and resources to accomplish goals.
4. Pair available resources to tasks to be accomplished.
5. Need to develop and implement Succession Planning for the Nuclear Division that ensures properly prepared people and continuity.
6. Senior management need to recognize nuclear as unique.

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Concern:

The consequences of commitments were not always considered.

Possible Solutions:

1. Evaluate needed resources.
2. Improve communications between people who make commitments and people who perform the work.
3. Develop a system or method to improve interactions between all relevant parties (promote teamwork).

6. STATUS OF ORIGINAL RECOMMENDATIONS.

The original Self-Appraisal Team report contained 39 recommendations. At present, 19 recommendations have been closed as follows:

6.1 6.12 6.21 6.26 6.32

6.2 6.13 6.22 6.27 6.33

6.4 6.14 6.23 6.30 6.36

6.5 6.15 6.25 6.31

Recommendations are only closed when all actions are completed or ongoing programs are implemented, and the Management Oversight Committee concurs that no further tracking is required.

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A number of the recommendations have resulted in on-going or long term activities. At the request of the Management Oversight Committee some previously closed recommendations have been reopened to expand their scope. Following is a brief status of the open and on-going recommendations. All of these recommendations continue to be tracked by the Nuclear Compliance & Verification group. As discussed in Section 8 of this report, the continuing Self-Assessment team will monitor the progress of all the programs and activities associated with these recommendations.

- 6.3 Establish a more rapid means to convey lessons learned to each department. Use of the draft Licensee Event Report or Occurrence Report is suggested. This could also include violations and NRC open items. If deemed appropriate, this report could be included later in the lessons learned book.

Lesson Learned Books have been established by the Operations, Maintenance, and Instrument and Control Departments. However, implementation for these departments is not complete at this time since no specific procedures exist to outline their use. This item remains open and is being tracked by the Self Appraisal Team.

- 6.6 An individual or group should thoroughly review the surveillance test schedule to verify that it is adequate to meet technical specifications.

The Quality Assurance Department was tasked with the responsibility for this review. On October 16, 1987, Quality Assurance completed its initial review and identified any apparent discrepancies. In November of 1987, a surveillance task force was established to resolve any inconsistencies among the Technical Specifications, Procedures and the Surveillance Scheduling Matrix. The task force published a memo informing the licensing department that inconsistencies among the Technical Specifications, Procedures and the Surveillance Scheduling Matrix had been identified. In addition the task force identified situations which required surveillance action in a "Triggers" document. In February of this year, a review of the Surveillance Task Force, Surveillance Matrix and "Triggers" document was performed.



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6.6 (Cont'd)

Subsequently, the Unit 2 Plant Superintendent issued a memo describing the use of the "Triggers" document. The "Triggers Document" was then distributed. Quality Assurance completed their review in March and issued a satisfactory completion. This recommendation was then closed by the Oversight Committee.

This item has been reopened by the Senior Management Oversight Committee because of a recent missed Technical Specification surveillance test. This item has been reassigned to Quality Assurance. This item will be tracked by the Commitment Tracking System.

6.7 Licensing needs to complete its Technical Specifications

Interpretations book for the Technical Specifications. Any specific Final Safety Analysis Report information that directly relates to operability needs to be identified.

The Technical Specification Interpretation book was issued for Unit II in November 1987, a Unit I interpretation book is in review at this time.

An operability review of the Final Safety Analysis Report to insure all design limitations have been incorporated or considered in plant operating documents was assigned to Niagara Mohawk Nuclear Engineering. A project report was issued in February of this year recommending a three phased approach. Phase one, which is underway, will consist of a review of selected safety systems and nuclear technology calculations that is considered a representative sample of all safety systems. This phase is expected to be finished in June.

6.8 Improvements are needed to get material expeditiously.

- a. Materials Management needs to determine an accurate inventory and load the parts on the computer.
- b. Modification Engineers need to ensure that walkdowns verify material availability and design adequacy.
- c. Senior Management should review priorities and schedules for the overall Materials Management action program.

In November of 1987, Niagara Mohawk assigned a Project Manager to resolve Nine Mile Point material concerns and to develop the Materials Engineering Group. Specifically within this responsibility is the requirement to address Self Appraisal Team recommendations and provide status reports on this item. The Project Manager meets regularly with senior management to get direction and provide status updates on the project.

The present schedule indicates that the concerns identified by the Self Appraisal Team report will be resolved by June of this year.

- 6.9 Include an evaluation of the recommendations of the Self Appraisal Team assessment in a revised facilities plan and establish a schedule for implementation.

An evaluation of each of the recommendations made by the Self Appraisal Team has been completed, and the current status, or recommended action has been described. Proposals to erect a new (East) operations office building and retention of construction phase buildings has been presented to management for action. Phase one of this plan has been approved and is being implemented presently. The remaining phases of the plan will be tracked by the Commitment Tracking System.

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- 6.10 Evaluate methods to improve oral and written communication with the Nuclear Regulatory Commission.

A Licensing Improvement Team has been formed to discuss ways to improve the relationship between Niagara Mohawk and various regulators such as the NRC. The team is composed of representatives of several departments each having experience in the licensing process. The team selected communications as their first area to address. To date, the team has met six (6) times and has identified those activities that make up the licensing process. A matrix of the various communications interfaces has been developed and is serving as the vehicle to identify interface problems and their root causes. Potential solutions are being developed to address identified problems and the Licensing Improvement Team has drafted a memo to senior management to inform them of their activities to date and to ask for additional direction in light of various personnel and organizational changes within the Nuclear Division that have occurred or are planned for the near future.

- 6.11 The Control Room Task Management Team should complete its activities.

The Control Room Task Management Team has completed its activities and issued a final report outlining activities to be taken and modifications to be made. The remaining items are on the Commitment Tracking System and will remain an on-going open Self Appraisal Team item until implementation of these items.

- 6.16 A resolution on instrument line design problems, including flex hoses, should be expedited by a task manager.

A number of modifications have been generated to address this problem. During an outage at Unit 2, Modification 167 on the Reactor Water Clean-Up System and Modification 177 on the Reactor Recirculating System were installed. Subsequent evaluation during operation resulted in additional recommended modifications to the Reactor Water Clean-Up System to be implemented during the upcoming spring outage. This item will continue to be tracked until resolved.

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- 6.17 The Kaman digital radiation monitor equipment task manager should be expediting the resolution to solving the reliability problems.

The resolution of reliability problems on the Kaman Digital Radiation Monitoring System has been ongoing since August of 1987. As the effort progressed, vendor involvement was improved and the system's reliability has increased. The remaining work has been scheduled and is on the modification tracking system to insure follow through by the assigned individuals in the Nuclear Design Group. This item will remain open for tracking purposes until implementation of those scheduled items.

- 6.18 Operational roles are unclear from the Unit Supervisor to the General Superintendent. Further, Engineering, Materials Management, Site Services, and support organizational interfaces and functions need clearer definition. Establish each department's roles and responsibilities with a functional organization chart which establishes responsibility and accountability.

This item is being addressed by the Management Effectiveness Team in defining of functional roles and responsibilities within the Nuclear Division as part of reorganization. Until reorganization is complete, this will be tracked as an open and on-going activity.

- 6.19 Planning for the mini outage and the first refueling outage must be expedited by establishing dedicated personnel and regular status meetings among involved managers and superintendents.

Planning for the mini outage has been addressed. The Manager Nuclear Fuels was assigned to coordinate NMP2 Outage Planning and a team was identified for this assignment. The Fall 1988 outage plans have been developed, reviewed, and approved. Modification prioritization has improved with the adoption of a ranking process.



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Planning for the first refueling outage has been limited. This function has been assigned to a new Manager of outage management as part of Nuclear Division reorganization. This is a long term action since this Manager is responsible for planning all outages including the first refueling outage. The prioritization process for engineering development of modifications is in place but must now be extended to evaluating which modification work is to be scheduled for each particular outage.

There was a need for additional improvements in the management support of planned outages. The Nuclear Division reorganization and the establishment of a dedicated Manager for outage management has focused management attention on this need.

- 6.20 Reduce administrative burden on key managers by delegating responsibilities for procedure approval to even out the workload.

This item is being addressed by the Management Effectiveness Team in defining of functional roles and responsibilities within the Nuclear Division as part of reorganization. Until reorganization is complete, this will be tracked as an open and on-going activity.

- 6.24 Candidates for a licensed operator or senior operator positions should be more thoroughly screened. Also, the training department should enhance training on leadership, command and control training as appropriate.

Candidates for licensed operator positions will be more thoroughly screened beginning with the license class in the second quarter of 1988. This screening mechanism involves a conference between the Operations Superintendent and the Training Superintendent evaluating several performance criteria for each candidate. These criteria include past job performance, past training performance, the results of a written examination, the results of an oral examination (plant walk through), and any other relevant information available.

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Candidates who are not selected for the licensing process will be counseled on their specific deficiencies, and may enter the licensing process at a later date should these deficiencies be remedied.

- 6.28 Engineering personnel need to receive system training and associated technical specification training to be more effective in modification planning.

A four part course with a total length equal to four weeks has been developed on each unit for engineering personnel. The last part of the course provides simulator exercises to reinforce plant systems and technical specification instruction.

This course will be offered each year for each unit, and engineering personnel will be selected to attend on an individual basis. Engineering personnel will continue to be notified of opportunities to attend a variety of Nuclear Training Center courses including Non-Licensed Operator System Training and specific Control System Training.

- 6.29 A procedure index for each procedure on site should be identified. The index should designate "experts" for each procedure for technical review. Assignments might also include a represented person as a reviewer.

Administrative Procedure AP-2.0, "Production and Control of Procedures", describes the generation, approval, publication, distribution and control of procedures issued by the Nuclear Generation Department, or to be approved by the General Superintendent, Nuclear Generation, for the site at Nine Mile Point. A list of all procedures and standing orders is maintained by the Supervisor Administrative Services and includes the date of most recent periodic review, the date of the most recent revision, and the date scheduled for the next periodic review.

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6.29 (Cont'd)

Once each month a list of procedures due for periodic review is issued. Upon receipt of the list for periodic review, the supervision assigns the procedure to the qualified persons for the review.

The Procedures Department has sent a copy of the Procedure index to each department requesting the supervisor assign a person's name to each procedure. These names are then added to the computer program controlling the procedures. As of this date, not all procedures have been assigned a systems expert, but the requirements of AP-2.0 remain in effect. Approximately 66% of the procedures have been assigned system experts, and this effort is on-going and will continue to be tracked to completion.

- 6.34 Site departments should adjust department personnel to address supervisory overload and overtime, and the need for additional personnel as planners and evaluators.

A number of planners and evaluators have been added in the Work Control Center. This item is being addressed by the Management Effectiveness Team in defining of functional roles and responsibilities within the Nuclear Division as part of reorganization. Until reorganization is complete, this will be tracked as an open and on-going activity.

- 6.35 Each manager needs to stress the practice of open communications. A program should be developed to reinforce the existing Nuclear Division Policy (NDMP-5) regarding open communications. The program should reinforce the existing policy and be reviewed on a periodic basis.

Niagara Mohawk Managers have stressed open communications in regular staff meetings. In addition, a number of meetings have been conducted by Senior Management to encourage and stress the need for communications. Nuclear Division Management Policy (NDMP-5) regarding open communications will be a part of the initial and annual retraining, General Employee Training Program. The concepts of the nuclear division policy are already a part of this program. This item will continue to be tracked until the revised General Employee Training Program is implemented in June of this year.

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- 6.37 Engineering should assign a task manager to expedite review of the VBS* Load List and to conduct a design review of the Reactor Protection and Nuclear Steam Supply Shutoff circuits and power supplies. This review will examine ways to improve testability, avoid safety system actuation and identify potential problems that could assist during testing.

The VBS* Load List review has been completed and is verified as complete. The review of the Reactor Protection (RPS) and Nuclear Steam Supply Shutoff System (NSSSS) Circuits and power supplies have been completed and reported to the Manager of Nuclear Design - NMP2. This final report includes recommendations for changes to procedures to identify additional precautions regarding testing and impacts of tests. This item is being tracked until procedural changes are completed.

- 6.38 The General Superintendent should review the study performed by the Self Assessment Team regarding administrative burdens on the Station Shift Supervisor, and take any appropriate actions.

Several actions that have been implemented to reduce the Station Shift Supervisor's administrative tasks are discussed in Section 5B. These include reducing the scope of procedure sign offs, an extra Control Room operator assigned to the day shift, and pre-scheduling and approval of surveillance tests and maintenance activities.

This item is also being addressed by the Management Effectiveness Team in defining of functional roles and responsibilities within the Nuclear Division as part of reorganization. Until reorganization is complete, this will be tracked as an open and on-going activity.

- 6.39 Nuclear Engineering and the Licensing department should take the following actions

- a. Licensing should be more aggressive in searching out information so that Safety Evaluations can be developed in parallel with design.

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6.39 (Cont'd)

- b. Engineering and Operations should provide conceptual information to Licensing.
- c. Engineering and Operations should keep Licensing abreast of schedule priorities regarding Safety Evaluations.
- d. The Licensing callout list should be followed on weekends.
- e. Licensing attendance at planning meetings should be improved.
- f. Licensing management presence at this site should be increased.

As noted in Sections 5G, Engineering Support, and 5E, Licensing, the items in this recommendation had been addressed during the Unit 2 Power Ascension Program and were considered to be successful. This recommendation was closed by the Oversight Committee in December of 1987. The Oversight Committee has reopened this recommendation to address these same concerns for the Unit 2 commercial operation.

7. NEW RECOMMENDATIONS

These are the new recommendations from this phase of the Self-Assessment Program. Courses of action and schedules are being considered.

- 7.1 Consider INPO Outage Assist Visit recommendations in formulating the outage management organization. (Section 5A Outage Management)
- 7.2 Complete Nuclear Division reorganization, particularly as it pertains to:
 - a. Defining responsibilities of the Work Control Group. (Section 5A Outage Management)
 - b. Improving the accountability of maintenance disciplines. (Section 5D Organization)
 - c. Clarifying the roles and responsibilities of the Licensing Group. (Section 5E Roles and Responsibilities)



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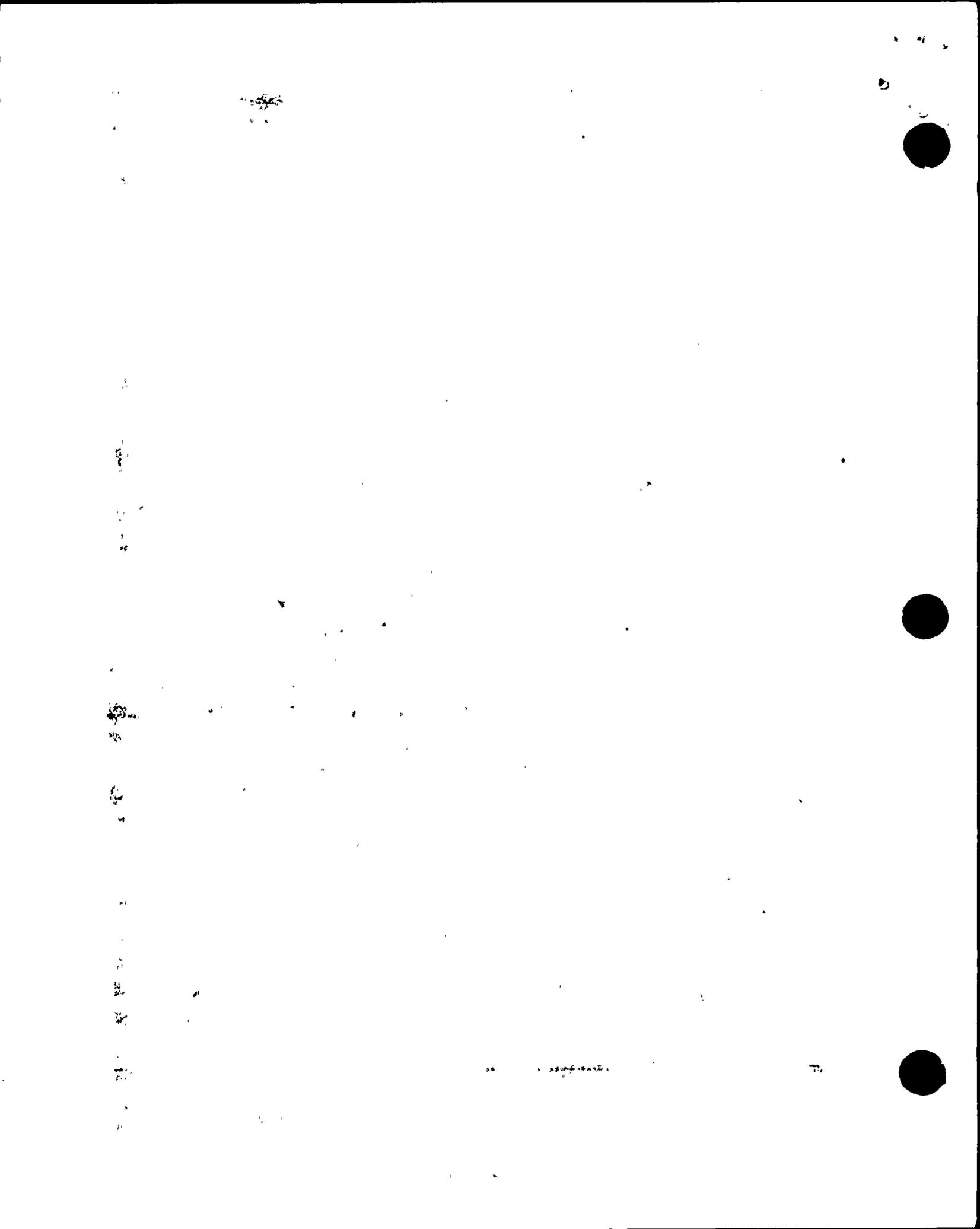
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- 7.3 Provide in-plant storage area for cleaning, maintenance, and other consumable materials. (Section 5A Housekeeping)
- 7.4 Provide permanent storage racks for specialty tools, tool carts, and other portable equipment which are permanently stored in the plant. (Section 5A Housekeeping)
- 7.5 Complete the operators' Code of Ethics. (Section 5A Teamwork and Operator Professionalism)
- 7.6 Consider "team" recommendations for improving the quality of the requalification program. (Section 5A Teamwork and Operator Professionalism)
- 7.7 Implement standardized equipment tagout practices for all shifts at Unit 2. (Section 5B Operations)
- 7.8 Departments should review procedures and eliminate unnecessary need for Control Room Personnel signatures. (Section 5B Operations)
- 7.9 Develop a method to assure the Station Shift Supervisor is aware of the on-duty personnel who satisfy the Technical Specification requirements for minimum shift staffing. (Section 5B Operations)
- 7.10 Consider "team" recommendations for improving frisking practices. (Section 5C Personnel Monitoring)
- 7.11 Complete evaluation for purchase of new dosimetry badge holders. (Section 5C Dosimetry Program)
- 7.12 Prepare a Radiation Protection Manual for issuance to all site employees. (Section 5C Radiation Protection Program)
- 7.13 Complete implementation of the "Hot Particle" program. (Section 5C Radiation Protection Program)



- 7.14 Improve the manhour tracking mechanism for preventive and corrective maintenance. (Section 5D Conduct of Maintenance)
- 7.15 Revise the Unit 2 "Q List" to a system/component level incorporating Appendix "B" determinations. (Section 5D Material Management)
- 7.16 Consider ways to improve the verification of parts availability for modifications. (Section 5D Material Management)
- 7.17 Increase the Niagara Mohawk licensing staff with personnel having significant technical expertise. (Section 5E Technical Capability)
- 7.18 Develop procedures to implement the Nuclear Division Commitment Tracking System. (Section 5E Commitment Management)
- 7.19 Develop a standardized method for establishing priorities from licensing section. (Section 5E Scheduling)
- 7.20 Review and implement appropriate recommendations from the INPO NRC audits. (Section 5F Training)
- 7.21 Use of the Institute of Nuclear Power Operations Human Performance Evaluation System to reduce LER's attributed to personnel error. (Section 5F Training)
- 7.22 Include ALARA reviews for engineering changes that are authorized by 50.59 checklist evaluations. (Section 5G Quality of Engineering Support)
- 7.23 Establish task manager program on a continuing basis. (Section 5G Communications and Teamwork)
- 7.24 Implement the Engineering and Operations Interface Coordinator position at each unit. (Section 5G Communications and Teamwork)
- 7.25 Incorporate peer review and operational involvement into the design modification process. (Section 5G Quality of Engineering Support)

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- 7.26 Establish an engineering action items punchlist for tracking and feedback. (Section 5G Quality of Engineering Support)
- 7.27 Consider methods to increase participation of affected groups on modification team activities. (Section 5G Modification Planning and Implementation)
- 7.28 Establish effective measures to assure early identification of outage modifications and minimize shifting of priorities. (Section 5G Modification Planning and Implementation)
- 7.29 Consider implementation of the recommendations submitted to the Oversight Committee on management effectiveness. (Section 5H Management Effectiveness)

8. FOLLOW-UP PLANS

Niagara Mohawk believes that the policy of self-critical appraisal has had significant benefits. Specifically, we have been able to identify, define, and bound a number of institutional and programmatic problems. This ability is largely due to the investigative and collegial methods employed by the Self-Appraisal Team. Therefore, self appraisal will be established as a permanent function.

The composition and operation of the permanent self appraisal will have a few significant changes. The Chairman of the Self-Appraisal Team will be the General Superintendent of Nuclear Operations, and the Chairman will be more expressly charged with responsibility for closing out the recommendations. The Team members will continue to make direct observations and to self-criticality assess these observations during periodic meetings. The reason for these changes is discussed in Section 9, Conclusions. The remainder of this section describes the objectives of the Self-Assessment Team follow up.



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Although Niagara Mohawk intends to continue the self-critical assessment process, it is making changes to improve the timeliness and responsiveness of corrective measures applied to identified problems. It is the intention of Niagara Mohawk to have completed, or have in progress, within one year of this report, responsive action for each recommendation of the Self-Appraisal Team. This includes the original recommendations as well as the ones identified in this report.

9. CONCLUSIONS

The process was effective at identifying problems and bringing them to the attention of management. To some extent, the process was effective in initiating corrective action when observations were brought to the attention of Self-Appraisal Team members who had organizational authority to implement the corrective action. The process, however, was not as effective in generating responsive corrective action for problems crossing several organizational boundaries.

Considering the observations, assessments, and recommendations contained in this report, Niagara Mohawk believes that it has demonstrated considerable strength in its ability to tackle and resolve complex technical issues. This ability was demonstrated in our resolution of the Unit 1 Feedwater vibration event and the Unit 2 vessel overflow event. Conversely, Niagara Mohawk has demonstrated less skill in its ability to handle people problems such as teamwork, professional attitude, and communications. The attention of the Self-Appraisal Team and Management Oversight Committee will be focused on these areas during the next year.

The Self-Appraisal Team and Management Oversight Committee have concluded that Niagara Mohawk has operated and maintained both Units in a safe and generally effective manner. However, there are a number of matters, particularly management practices which can be improved to enhance the effectiveness of the Nuclear Division and Quality Assurance Department.

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