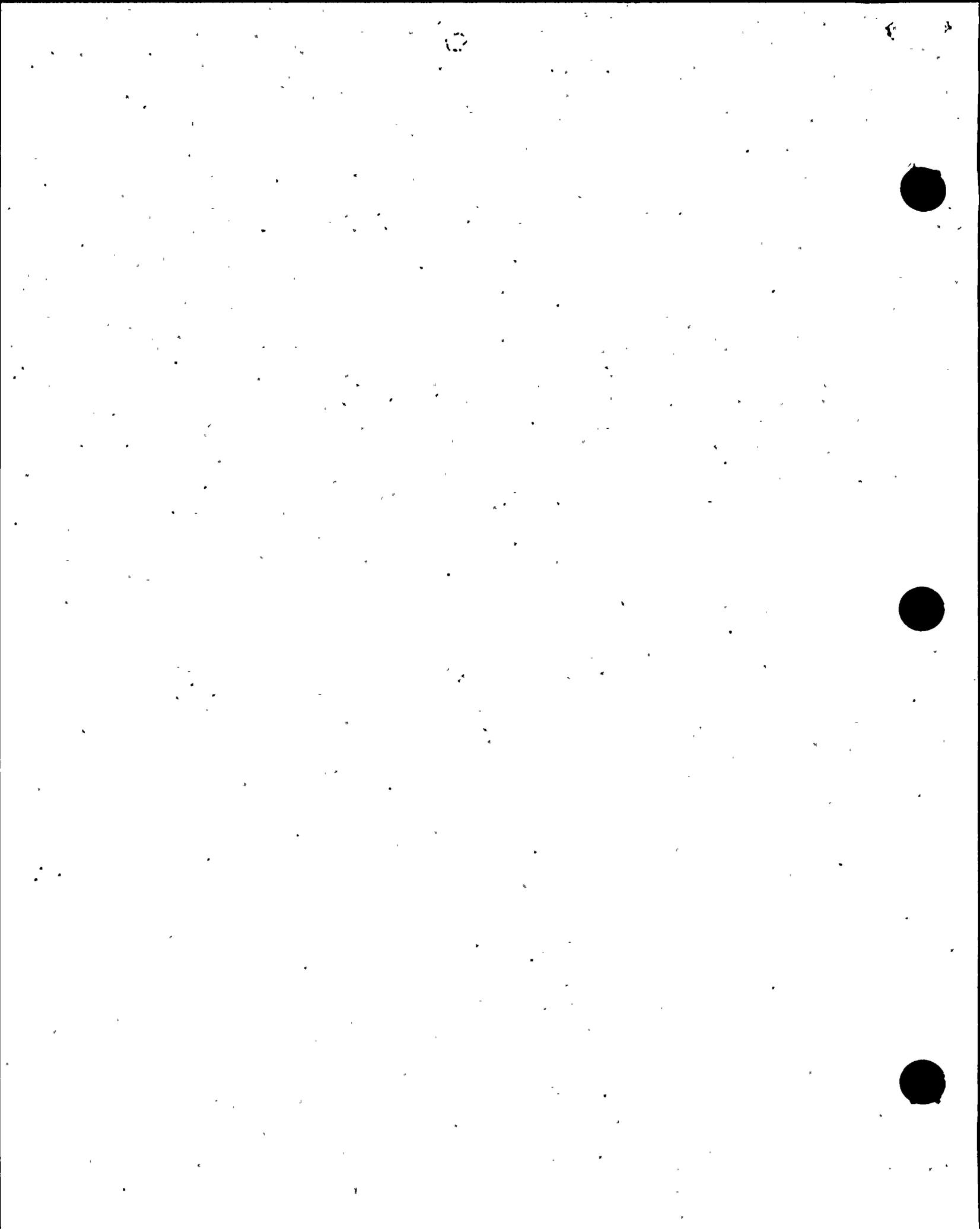


**NM NIAGARA  
NM MOHAWK**

**NINE MILE POINT UNIT 1  
RESTART ACTION PLAN  
DECEMBER 1988**

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NIAGARA MOHAWK POWER CORPORATION

NINE MILE POINT UNIT 1

RESTART ACTION PLAN

DECEMBER 1988

Approved:

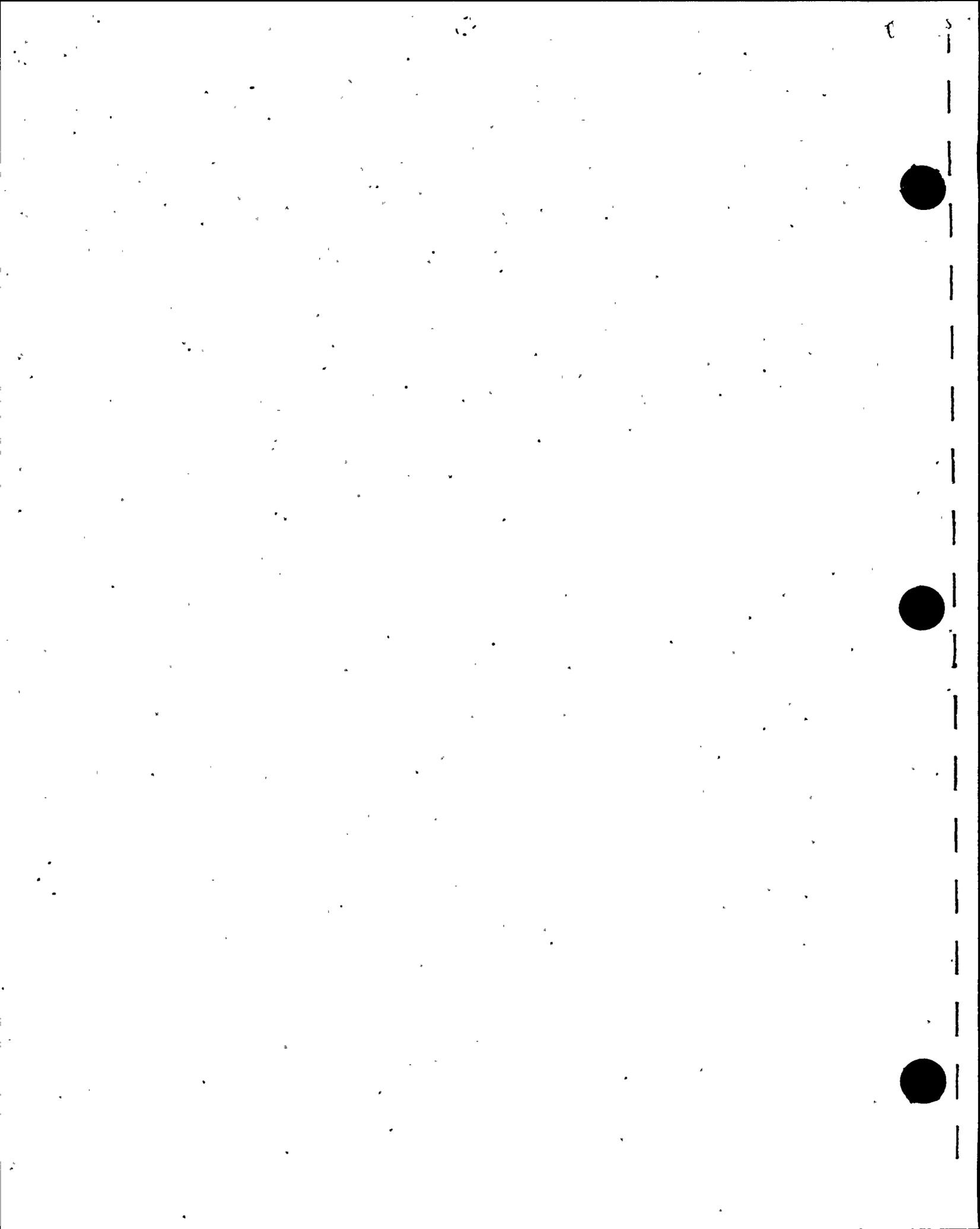
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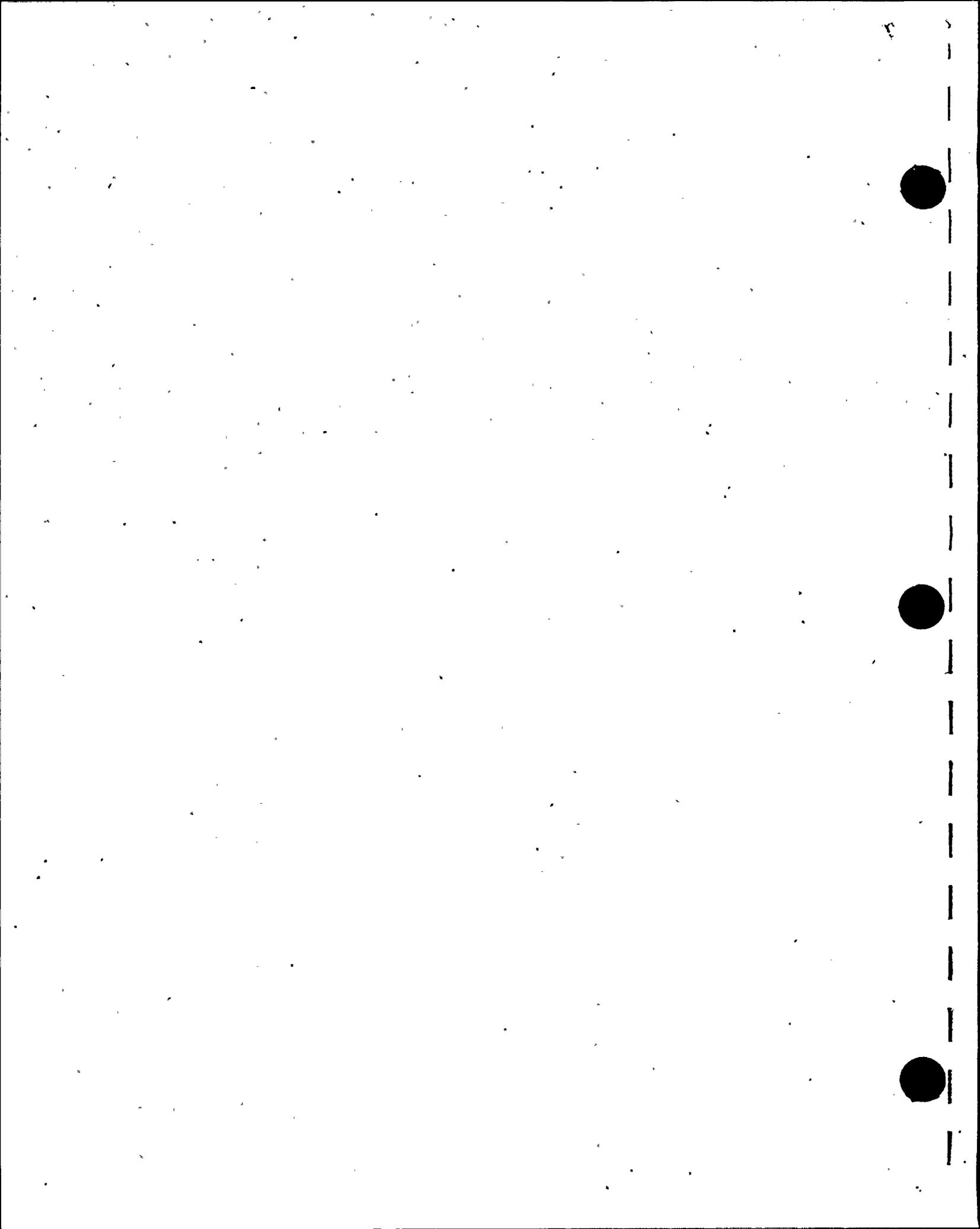
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Nine Mile Point Unit 1 Restart Action Plan

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## EXECUTIVE SUMMARY

This Restart Action Plan represents Niagara Mohawk Power Corporation's initial response to a Nuclear Regulatory Commission issued Confirmatory Action Letter 88-17 (CAL) dated July 24, 1988. This letter described the actions required of Niagara Mohawk prior to restart of its Nine Mile Point Unit 1.

In December 1987, Unit 1 was shut down due to excessive vibration in the feedwater system. During the shutdown, Niagara Mohawk committed to resolve identified problems associated with the Inservice Inspection Program (ISI). In the course of the outage, additional technical and programmatic deficiencies were identified by Niagara Mohawk and the Nuclear Regulatory Commission. These deficiencies led to the issuance of the CAL.

The Restart Action Plan was developed deliberately and systematically to utilize and build on the existing strengths of the Nuclear Division of Niagara Mohawk. It has used input from throughout the Nuclear Division to determine, analyze, and propose corrective actions for solutions where problems have been encountered and weaknesses experienced. The Plan has been enhanced by feedback from all levels of personnel from operations, engineering and support organizations. As part of the review process, the Plan was explained and discussed at a number of meetings within the Nuclear Division to assure buy-in at all levels. It has also been reviewed by the Institute of Nuclear Power Operations (INPO). Niagara Mohawk senior management, which had been an integral part of the restart effort from the outset, approved submission of the Plan.

This Plan responds to the first two conditions of the Nuclear Regulatory Commission's Confirmatory Action Letter:

1. Determine and document [Niagara Mohawk's] assessment of the root cause(s) of why Niagara Mohawk line management has not been effective in recognizing and remedying problems, in particular the problems which were the subject of CAL 88-13 (maintenance of operator licenses), Inspection Report 50-220/88-22 (licensed operators' knowledge and use of emergency operating procedures), and the issues discussed during the June 20, 1988 meeting at Region I.
2. Prepare a proposed restart action plan, and submit it to the Nuclear Regulatory Commission, Region I Regional Administrator, for review and approval. The Plan will identify all actions required to be completed prior to startup and a schedule for completion of all other actions to be completed after startup that are needed to address the root cause(s) identified in Item 1. For actions proposed for completion after restart, [Niagara Mohawk] will provide justification for why completion after restart will not have an adverse impact on safe plant operation.

In accordance with the third requirement of the Confirmatory Action Letter, a written report relative to the readiness of Nine Mile Point Unit 1 for restart will be provided as all necessary actions are nearing completion.

The Restart Action Plan constitutes the short-term actions, that is, those necessary for startup, which represent Niagara Mohawk's commitment to improve performance. A Nuclear Improvement Program is being developed in parallel with the restart effort. It will include near-term and long-term corrective actions for addressing management and organizational effectiveness and long-term corrective actions associated with the specific technical issues.

The leadership and direction for the restart effort come directly from the Chief Executive Officer and the President who have been involved in the organization and review of the Restart Action Plan effort. In response to the Confirmatory Action Letter, Niagara Mohawk senior management established three primary objectives:

1. To take aggressive yet carefully considered measures to: identify the issues, take required actions and assure that the results have been documented, verify adequate completion of restart actions, and maintain an auditable record;
2. To assure that the Plan is owned by Niagara Mohawk personnel at all levels, with line management defining root causes and corrective actions and taking necessary actions to implement the corrective actions and verify their completion; and
3. To assure that senior Niagara Mohawk management is actively involved in the development and implementation of the Restart Action Plan.

In developing the Restart Action Plan to fulfill management objectives, Niagara Mohawk has implemented a systematic approach to assure:

1. Issues are identified;
2. Issues are effectively analyzed to determine their root causes;
3. Effective corrective actions are identified which will address these root causes;
4. Appropriate accountability is assigned such that corrective actions are implemented; and
5. Follow-up evaluations are performed to assess whether corrective actions are accomplishing the desired change in performance.

A Restart Task Force was established to consult with line management on the development of the Restart Action Plan and to facilitate its development and implementation. The Restart Task Force reports directly to the Executive Vice President - Nuclear Operations. The coordination and implementation of the restart effort is the responsibility of the line organizations as headed by the General Superintendent - Nuclear Generation and the Vice President - Nuclear Engineering & Licensing, as well as the various support organizations.

This Restart Action Plan has three major aspects. The first describes the process for developing and implementing the Plan, identifying issues, determining root causes, and developing and verifying corrective actions. The second identifies generic problem areas, underlying root causes, and the corresponding corrective actions. The third discusses the specific issues that are being addressed in preparation for restarting Nine Mile Point Unit 1. The Plan also discusses strategies for post-restart actions where appropriate. These strategies are intended to prevent recurrence of problems similar to those experienced by Niagara Mohawk. The details of these and other long-term measures will be part of the Nuclear Improvement Program.

A significant task in developing the Restart Action Plan consisted of a review of a number of initiatives Niagara Mohawk had taken in the past to correct previously-identified deficiencies and an analysis of why those actions were not always successful or timely. Actions were then taken to assure that the present restart process responded to the previous shortcomings. These actions included:

1. A more comprehensive effort to identify issues;
2. A more structured analysis with formal root cause assessment and emphasis on human performance;
3. An iterative effort involving a process of buy-in by the line organization relating to the identification of issues, root causes and corrective actions, and implementation of the required actions;
4. An issue analysis with emphasis on a deeper look at management, including a comprehensive look at past problem areas for trends and common root causes;
5. A comprehensive look by all levels of supervision to identify, track, resolve, and close out problems not previously documented; and
6. A systematic review by senior management and experienced, outside consultants.

To determine the issues to be analyzed as part of the Restart Action Plan, Niagara Mohawk implemented a three-pronged approach:

1. An assessment was performed in which previously-identified issues and trends were evaluated to determine if they were symptomatic of underlying, broad-based issues and in which underlying root causes were identified;
2. Specific issues that had previously been determined to be prerequisite for restart, for example, matters contained in Confirmatory Action Letter 88-17, were compiled; and
3. A process for ongoing review and identification of new issues was established to determine if they involve matters that need to be addressed prior to restart.

To identify underlying root causes, the Restart Task Force, with line management participation and overview by senior management, reviewed selected historical documents related to the operation of Unit 1 and, to the extent deemed necessary, Unit 2. This assessment identified trends and common causes. Other sources were similarly assessed. Issues were evaluated to determine if they were isolated or symptomatic of an underlying broader issue. In the process of sorting the issues and trends by root cause category, it was determined that substantially all of the issues fell into the Management and Organizational Effectiveness category and have, therefore, had a corresponding detrimental effect, as well, on morale and attitude. The individual root causes were grouped into the following five underlying root causes:

1. 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. The process for 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. Management's technical focus has created an organizational culture that diverts attention away from the needs and effective use of employees.
4. Standards of performance have not been defined or described sufficiently for effective assessment, and self-assessments have not been consistent or effective.
5. 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.

The underlying root causes formed the overall basis for specifying corrective action objectives.

The corrective actions corresponding to the underlying issues were then grouped according to their respective root cause and corrective action objectives. The corrective actions were reviewed to determine if they were required to be implemented prior to restart, or as near-term or long-term actions after restart. The Plan contains corrective actions evaluated relative to their potential for impact on safe plant operations. Those items which were: 1) significant to safe operations, or 2) necessary to demonstrate sufficient progress on resolution of those issues that will not be fully resolved before restart were categorized as Priority 1; that is, items to be completed prior to restart. The Plan also contains summaries of the long-term strategies for continued actions beyond restart.

Niagara Mohawk recognizes that fully addressing underlying root causes is necessarily a long-term effort involving, among other things, cultural change. The overall longer-term corrective actions corresponding to the underlying root causes, along with the long-term corrective actions related to specific issues, form the basis of the Nuclear Improvement Program.

The specific issues are those described in a letter from Mr. W. Kane to Mr. C. V. Mangan dated May 4, 1988, plus additional issues identified during the course of the current Unit 1 outage. These are listed in Table 1.

The identification of issues is an ongoing process. Each issue, or potential issue as it is identified, is evaluated using established criteria to determine if its resolution is a necessary prerequisite for restart. Each issue so identified is assigned to a Niagara Mohawk line manager who oversees the analysis for specific root causes, with participation of line management from other departments and assistance of the Restart Task Force. A consensus on the root cause and corrective actions is reached through discussions among the Restart Task Force and line organizations.

The same line manager is also responsible for determining corrective and verification actions. The line managers, in conjunction with the Restart Task Force, assure that proposed corrective actions adequately address the issue, and that the verification steps provide sufficient evidence of completion. This review is continued by senior management which provides feedback to line management.

The first specific issue entitled "Outage Management Oversight" includes management of all activities under the Restart Action Plan as well as completion of all other activities necessary to assure Niagara Mohawk management that Unit 1 is prepared for restart. Personnel who are assigned accountability for developing the resolution of an issue are responsible for managing the implementation of such a solution. The plan and schedule for each issue is developed by the responsible manager and given to the Outage Manager. Niagara Mohawk management oversees these restart activities and evaluates progress at regularly scheduled review meetings.

Following completion of corrective actions, the responsible manager signifies on a Closeout Summary Report that corrective actions have been taken. Verification is carried out in accordance with the verification actions described in the Plan. Once verification for a particular issue is complete, the matter is reviewed by the Site Operations Review Committee (SORC) before restart requirements are deemed to be satisfied and before the Nuclear Regulatory Commission is notified that the specific corrective action and its verification has been completed..

A structured approach is being utilized to assess successful completion of the Restart Action Plan and preparation of the Readiness for Restart Report. The elements of this review include the Safety Review and Audit Board (SRAB), a Restart Review Panel (RRP) chaired by the Executive Vice President - Nuclear Operations and consisting of Niagara Mohawk senior management, both within and outside the Nuclear Division, representatives from other nuclear utilities, select members of the Restart Task Force and outside consultants, as well as an INPO assist team assessment. The Chairman and Chief Executive Officer, President, and the Board of Directors, including its Nuclear Oversight Committee, will also participate. The final decision regarding the Company's readiness for restart will be made by the Chief Executive Officer and reported to the Nuclear Regulatory Commission.

In summary, Niagara Mohawk has fulfilled the first two steps required by the Nuclear Regulatory Commission's Confirmatory Action Letter to restart Nine Mile Point Unit 1. The Company has established a comprehensive program to correct identified problems to improve performance, drawing upon past successes and shortcomings and utilizing a comprehensive self-evaluation process. With the assistance and input from various levels of personnel in the Nuclear Division and senior management, root causes have been identified, corrective actions established, verification activities planned, and long-term strategies outlined. The completion of those activities identified in the Restart Action Plan and their thorough verification, review, and acceptance by all levels of Niagara Mohawk personnel will permit a restart readiness determination by the Company.

TABLE 1

Specific Issues

1. Outage Management Oversight
2. Maintenance of Operator Licenses
3. Emergency Operating Procedures
4. Inservice Inspection
5. Control of Commercial Grade Items
6. Fire Barrier Penetrations
7. Torus Wall Thinning
8. Scram Discharge Volume
9. Appendix J Testing of Emergency Condenser and Shutdown Cooling Valves
10. Reactor Pressure Vessel Pressure/Temperature Curves
11. Erosion/Corrosion Program
12. Motor Generator Set Battery Chargers
13. Implementation of Long-Term Programs Related to I&C Technician Allegation Issue
14. Safety System Functional Inspection
15. Cracks in Walls and Floors
16. Feedwater Nozzles
17. Inservice Testing
18. 125 VDC System Concerns

## INTRODUCTION

In December 1987, Nine Mile Point Unit 1 was manually shut down due to excessive vibration in the feedwater system. It was originally anticipated that the feedwater system would be repaired and the Unit would be restarted and operated until the planned Spring 1988 refueling and maintenance outage. However, prior to the December 1987 shutdown, both Niagara Mohawk and the Nuclear Regulatory Commission (NRC) had identified several concerns with respect to the Inservice Inspection (ISI) Program. Because of these concerns, Niagara Mohawk committed to resolve the open items associated with the ISI Program prior to Unit 1 restart. Further Niagara Mohawk evaluation of the ISI concerns indicated that the problems were potentially more extensive than originally believed. Based on this evaluation, Niagara Mohawk decided to start the refueling and maintenance outage early.

In March 1988, Niagara Mohawk identified a deficiency in a fire barrier under the Nine Mile Point Unit 1 Battery Rooms during installation of a modification. As a result of this deficiency, a program was initiated to evaluate the adequacy of all fire barriers.

In addition to the Inservice Inspection and Fire Protection programmatic issues, other technical issues were identified by Niagara Mohawk and the NRC. These issues were discussed with the NRC on June 20, 1988. Following this meeting, the NRC discussed additional commitments with Niagara Mohawk. This led to the NRC issuing Confirmatory Action Letter (CAL) 88-17 dated July 24, 1988 that contains the actions to be taken by Niagara Mohawk prior to restart of Nine Mile Point Unit 1. The specific actions contained in the letter are:

- "1. Determine and document [Niagara Mohawk's] assessment of the root cause(s) of why Niagara Mohawk line management has not been effective in recognizing and remedying problems; in particular, the problems which were the subject of CAL 88-13 (maintenance of operator licenses), Inspection Report 50-220/88-22 (licensed operators' knowledge and use of emergency operating procedures), and the issues discussed during the June 20, 1988 meeting at Region I.
2. Prepare a proposed restart action plan, and submit it to the NRC Region I Regional Administrator for review and approval. The plan will identify all actions required to be completed prior to startup and a schedule for completion of all other actions to be completed after startup that are needed to address the root cause(s) identified in Item 1. For actions proposed for completion after restart, [Niagara Mohawk] will provide justification for why completion after restart will not have an adverse impact on safe plant operation.
3. Provide a written report relative to the readiness of NMP1 for restart. Include in this report a) [the] bases for concluding that NMP1 is ready for restart, b) a self-assessment of the implementation of the restart action plan, and c) [the] conclusions as to whether Niagara Mohawk's current line management has the appropriate leadership and management skills to prevent, or detect and correct, future problems."

The Restart Action Plan describes Niagara Mohawk's restart actions in response to Confirmatory Action Letter 88-17. Specifically this document:

- Summarizes the assessment process used to identify issues and their root causes.
- Summarizes the assessment process used to identify the underlying root causes of why line management had not been effective in recognizing and remedying problems and issues relating to regulatory concerns.
- Identifies the specific issues, causes and the corrective actions associated with those causes required to be completed prior to plant startup, based on the identified root causes.
- Summarizes those long-term strategies that address actions that will be completed after restart. These strategies reflect enhancements that will further strengthen the effectiveness of management and the organization and, therefore, go beyond the specific actions required for restart and safe plant operation.

This Restart Action Plan represents the short-term part of Niagara Mohawk's commitment to improve performance. The Nuclear Improvement Program, an internal Niagara Mohawk document, is being developed in parallel with this Plan and will include the near-term and long-term corrective actions for addressing management and organizational effectiveness and long-term corrective actions associated with specific issues.

The Restart Action Plan is divided into Parts I and II, and Appendices. Part I provides an overview of the development and implementation of this Plan. It describes the processes used to identify issues, determine root causes, and develop corrective actions. It describes how specific issues will continue to be identified and addressed, and how the Plan is being implemented.

Part II contains the corrective actions related to underlying root causes and specific issues that are being addressed in preparation for restarting Nine Mile Point Unit 1. Information provided includes actions that will be taken to verify corrective action implementation. Completion of these corrective and verification actions is a prerequisite for restart and safe operation.

Part II also contains strategies for post-restart actions where applicable. These strategies are intended to prevent recurrence of similar problems. Near-term and long-term corrective actions to implement these strategies are part of the Nuclear Improvement Program, which will be available for NRC review.

The Restart Action Plan Appendices contain the Restart Task Force Charter, Process for Assessment of Underlying Root Causes, and Criteria to Determine if an Issue is a Regulatory Concern.

## OVERVIEW OF PLAN DEVELOPMENT AND IMPLEMENTATION

### 1. RESTART ACTION PLAN DEVELOPMENT PROCESS

In developing the Restart Action Plan, Niagara Mohawk has implemented a systematic approach to assure: a) issues are identified, b) issues are effectively analyzed to determine their root causes, c) effective corrective actions are identified which will address these root causes, d) appropriate accountability is assigned such that corrective actions are implemented, and e) follow-up evaluations are performed to assess whether corrective actions are accomplishing the desired change in performance.

Prior to the receipt of the Confirmatory Action Letter, Niagara Mohawk had recognized the need to improve elements of performance. This included initiating actions to strengthen the organization and improve communications. Confirmatory Action Letter 88-17 indicated that issue identification and resolution was one of the areas where performance had not been satisfactory. As a result, Niagara Mohawk has included in this Restart Action Plan changes in the management approach to correct deficiencies in this area.

By way of comparison, the self-assessment process used in 1986 in response to an I&C technician's allegations differs from the process being used for the Restart Action Plan. The process used in 1986 did not meet expectations regarding bringing forward and resolving concerns, teamwork deficiencies, and root causes of management and organizational type issues. Shortcomings in the process have been attributed to the lack of buy-in by line management; resources applied to Nine Mile Point Unit 2 at that time at the expense of Nine Mile Point Unit 1; too narrow a focus in identifying root causes and corrective actions; and too short an evaluation time. Based on these identified limitations, the self-assessment used for this restart effort differs from the effort of 1986 in the following respects:

- The current process involves a comprehensive effort to identify issues.
- The current process involves a more structured analysis of identified issues and formal root cause assessments which emphasize human performance factors.
- The current process involves an iterative effort involving buy-in in which a Restart Task Force coordinates while the line organizations identify issues, develop or concur with root causes and corrective actions, and implement the actions. The charter of the Restart Task Force is contained in Appendix A.
- The current analysis of issues involves emphasis on a deeper look at management, including a comprehensive look back at past problem areas and a comprehensive review of documents for trends and common root causes.

- The process now includes a comprehensive look by all levels of supervision to identify problems not already documented and to document them using a formal tracking system to identify, resolve, and close out issues.
- The current team is composed of higher level management and outside consultants and is closely monitored by the President and Chief Executive Officer.

In summary, the current effort involves a more comprehensive review of issues, a retrospective look, focus on management issues, a formal root cause analysis, expanded involvement by senior management, and buy-in by responsible organizations to assure timely and effective implementation.

Niagara Mohawk senior management implemented a three-pronged approach to identifying issues to be addressed in the Restart Action Plan. First, an assessment was performed in which issues and trends were evaluated to determine if they were symptoms of underlying, broad-based issues. As a result of this assessment, underlying root causes were identified. Second, specific issues that had previously been determined to be prerequisites for restart, for example, items in Confirmatory Action Letter 88-17, were compiled. Third, an ongoing process for identifying and reviewing new issues was established to determine if they involve regulatory concerns that need to be addressed prior to restart. Sections 2 and 3 below describe this three-pronged approach in more detail.

## 2. UNDERLYING ROOT CAUSES

To identify underlying root causes, the Restart Task Force, with line management participation, developed and implemented an assessment process. This process involved reviewing the following historical documents to identify issues and trends:

- Seventy Licensee Event Reports/Special Reports involving Nine Mile Point Unit 1 over a two year period;
- SALP/NRC Inspection Reports back to 1981 with primary emphasis on the most recent SALP report information;
- INPO assessment reports for 1986 and 1987;
- Enforcement conference minutes from 1983 to present for both units;
- All ten Department of Labor Cases; and
- Quality Assurance Trend Reports for both units over the last twelve months.

In addition, two other sources of information were assessed for issues and trends. These two sources were the results of a Nuclear Generation brainstorming session relating to concerns addressed in Mr. V. Stello's letter to Mr. J. Endries, dated July 8, 1988; and a Restart Task Force matrix which addressed issues and their overall common observations/contributory factors or elements. Included in these issues were the long-term improvement programs committed to in response to the I&C technician's allegations.

The process applied to assess issues and trends is detailed in Appendix B. In summary, this process involved sorting root causes of issues and trends into root cause categories. An assessment of these root causes, sorted by category, led to the identification of the following five underlying root causes:

1. 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. The process for 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. Management's technical focus has created an organizational culture that diverts attention away from the needs and effective use of employees.
4. Standards of performance have not been defined or described sufficiently for effective assessment, and self-assessments have not been consistent or effective.
5. 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.

Subsequently, corrective action objectives and sets of specific corrective actions were developed to address each of these underlying root causes. Fully addressing these broader, underlying root causes is necessarily a long-term effort involving cultural change. For this reason, all of the corrective actions corresponding to these underlying root causes form the basis of the Nuclear Improvement Program. Each corrective action item was evaluated by an integrated team of selected Nuclear Division managers and Restart Task Force representatives relative to its potential for impact on safe plant operations. Those items which were 1) significant to safe operations or 2) necessary to demonstrate sufficient progress on resolution of those issues that will not be fully resolved before restart were categorized as Priority 1; that is, items to be completed prior to restart. All other items were categorized as post-restart items. An independent review and evaluation of each of the items was performed by

senior Nuclear Division management for reasonableness, clarity, responsibility, and priority designation. Proposed changes and questions were discussed and resolved with the integrated team who performed the initial evaluation. The resultant corrective actions required to be completed prior to restart (Priority 1) are listed in Part II of the Plan under Tables U1 through U5.

### 3. SPECIFIC ISSUES

The specific issues that are being addressed as prerequisites to restart are listed in Part II. These issues encompass the specific restart issues described in a letter from Mr. W. Kane to Mr. C. V. Mangan, dated May 4, 1988, plus additional issues identified during the course of the Restart Action Plan development. Niagara Mohawk is continuing its evaluation process to identify additional specific issues and to act on them as their assessments are completed. Any additional specific issues identified subsequent to the submittal of this Plan will be resolved using the process detailed in this Plan. The Plan will not, however, be formally amended to include newly-identified issues.

Each issue was analyzed, using criteria per Appendix C, to determine if it was a regulatory concern and hence to be included in the Restart Action Plan. The responsible line organization then reviewed each assigned issue, dividing it into sub-elements where appropriate, and analyzing each issue/sub-element to determine specific root causes. The Restart Task Force provided guidance and facilitated meetings as appropriate, and acted as a catalyst to ensure that the responsible line organization thoroughly evaluated comments received. Consensus was reached on root causes and corrective actions through group discussions among the Restart Task Force and line organizations.

The responsible line organization also was required to determine the corrective and verification actions necessary to solve the problem. The line managers, in conjunction with the Restart Task Force, reviewed the actions to assure that the corrective actions addressed the issue and that the verification actions provided sufficient evidence of completion. Senior management reviewed the Restart Action Plan as a whole; reviewed the root causes and corresponding corrective and verification actions for each issue; and provided feedback to line management regarding adjustments to the Plan.

Specific Issue 1, Outage Management Oversight, involves managing the completion efforts for all of the Restart Action Plan actions as well as the physical plant completion.

#### 4. RESTART-ACTION PLAN IMPLEMENTATION

The Plan implementation process consists of three elements: performing the corrective action, evaluating the results of action to verify that the issue was fully resolved for restart, and closing the item.

The outage management organization has been expanded as part of the resolution of Specific Issue 1, Outage Management Oversight. The outage management organization evaluates progress on the issues addressed in this Plan. A plan and schedule for each issue is developed by the responsible manager and given to the Outage Manager. The Outage Manager incorporates these plans and schedules into the schedule that he uses to manage all of the restart prerequisites. Table 1 provides a listing of the types of restart prerequisites tracked by the Outage Manager.

Following the completion of corrective actions identified in this Plan, the responsible manager signs off on a Close Out Summary Report per established administrative procedures. Verification activities are then carried out per the stated verification actions described in this Plan. Sign off, signifying that verification action has been completed, is also documented on the Close Out Summary Report. Once the corrective actions and verification actions listed in this Plan are completed, documented, and signed off for an issue, a review and approval of the entire issue is made by the Site Operations Review Committee before the issue is considered to satisfy its restart requirements. Upon completion of verification actions, the NRC is notified that the specific corrective action and its verification action have been completed.

Niagara Mohawk management provides oversight of restart activities and evaluates progress at weekly and monthly review meetings. In addition, Niagara Mohawk senior management has established a structured approach to assess readiness for restart. This self-assessment involves various levels of review, including reviews by the Safety Review and Audit Board (SRAB) and a Restart Review Panel. The Restart Review Panel will be chaired by the Executive Vice President - Nuclear Operations and consists of Niagara Mohawk senior management both within and outside the Nuclear Division, representatives from other nuclear utilities, select members of the Restart Task Force and outside consultants. In addition to the self-assessment, an INPO assist team assessment will be performed. Prior to the final decision regarding the Company's readiness for restart being made by the Chief Executive Officer, the President and Board of Directors, including its Nuclear Oversight Committee, will participate in the review of restart readiness. The Restart Action Plan involves all levels of management in a comprehensive self-assessment process.

TABLE 1  
RESTART PREREQUISITES TRACKED BY THE OUTAGE MANAGER

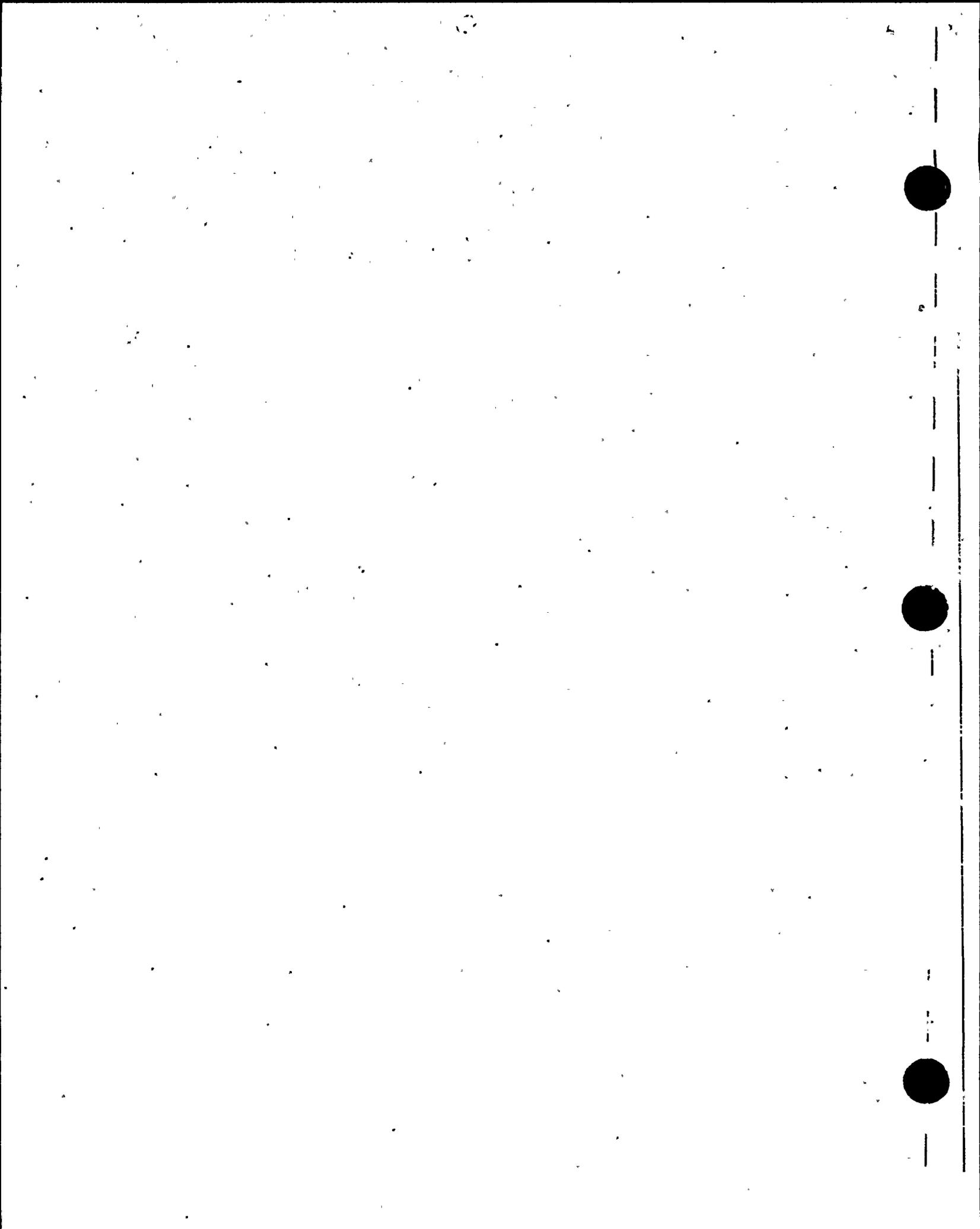
There are other prerequisites for restart beyond those specific corrective and preventive actions reflected in the Restart Action Plan. The following is a list of examples of specific types of items that will be tracked by the Outage Manager and will receive ongoing review to assure that restart prerequisites will be properly completed, reviewed, and documented:

- Corrective Actions associated with Underlying Root Causes
- Corrective Actions associated with Specific Restart Issues
- Site Operations Review Committee Open Items
- Environmental Qualification Required Maintenance Items
- Preventive Maintenance Items
- Work Request Items
- System Walkdown - turnovers
- Area Walkdown - turnovers (including Housekeeping items)
- Corrective Action Request Items
- Nonconformance Report Items
- Surveillance Report Items
- Licensing & Regulatory Commitment Items (Nuclear Commitment Tracking System Open Items)
- Nuclear Regulatory Commission Open Items
- Required System Operability Functional Testing Items
- Operations Experience Assessments
- Temporary Mods/Annunciators Blocked Items
- Problem Report Items
- Modification Request Form Items
- Modification Items

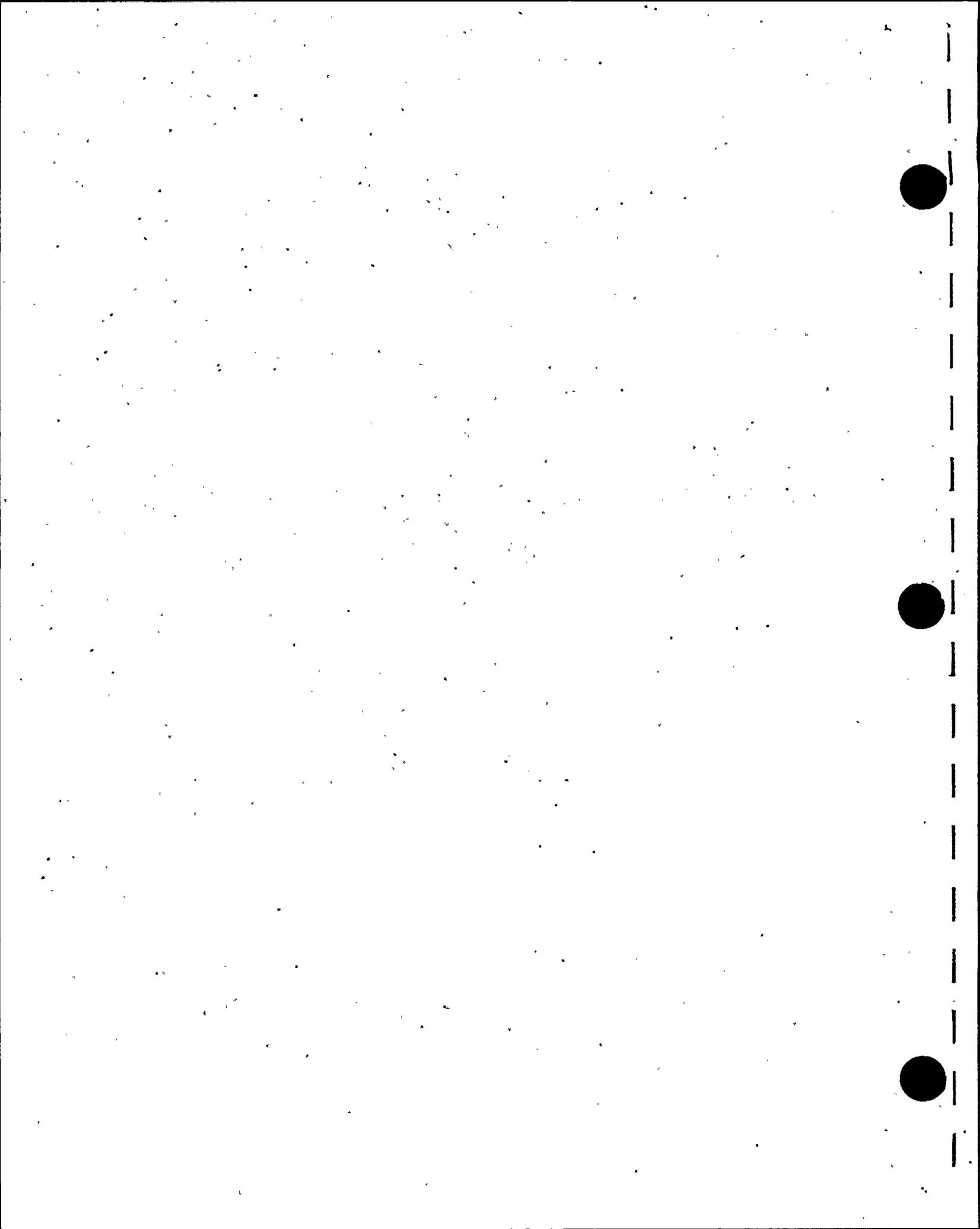
## 5. CONCLUSION

Recognizing that the issue identification and the root cause analysis efforts in the past were not completely satisfactory, Niagara Mohawk developed the Restart Action Plan using a substantially more detailed and comprehensive process than used in previous self assessments. Specifically, issues and trends from various historical findings were evaluated to determine if they were symptoms of broader, underlying problems. The assessment clearly points out that underlying the specific restart issues are broader management and organizational effectiveness issues which have also had a detrimental effect on morale and attitude. By addressing these broad issues from identification and assessment of root causes through close out of their corrective actions, Niagara Mohawk is confident that the recognition of shortcomings and the effectiveness of the actions taken to correct those shortcomings will improve its performance across the organization. The comprehensive process used to develop the Restart Action Plan has also identified the specific issues having regulatory significance that may impact the safe operation of Unit 1. With the implementation of the corrective and verification actions committed to in this Plan, Niagara Mohawk is confident that it will be ready to successfully start up and operate Nine Mile Point Unit 1.

Senior management is committed to address the underlying root causes by establishing performance measurements, clarifying ownership, and performing timely assessments. The Restart Action Plan is the initial step in the Nuclear Improvement Program. Successful completion of the corrective actions in this Plan will constitute key early points on the path toward the long-term goal of steadily improving Niagara Mohawk's overall effectiveness.



PART II - ISSUES/ROOT CAUSES WITH ACTIONS BEFORE RESTART AND STRATEGIES AFTER RESTART



## 1. UNDERLYING ROOT CAUSES

Part II contains information on the two types of concerns that are being addressed in preparation for NMP1 restart, the Underlying Root Causes and the Specific Issues. Tables U1 through U5 identify, by underlying root cause, corrective action objectives related to root cause categories of Management and Organizational Effectiveness. The Tables also provide a listing of those corrective actions and verification actions which have been identified as prerequisite to restart.

The assessment process and the specific types of documents used as the basis for identifying the Underlying Root Causes are summarized in Part I, Section 2.

Tables U1 through U5 provide the following information:

**UNDERLYING ROOT CAUSE:** Each of the Tables U1 through U5 addresses one of the underlying root causes.

**CORRECTIVE ACTION OBJECTIVE:** Management has analyzed each of the underlying root causes and has identified one or more objectives for each. These objectives provide a focus for the restart corrective actions and long-term strategies in addressing the root cause.

**RESTART CORRECTIVE ACTION:** For each corrective action objective, management has specified actions relating to that objective that are to be completed prior to restart.

**VERIFICATION ACTION:** To the right of the Restart Corrective Actions are numbers which reference actions that will be taken to verify that the completed corrective action satisfies the conditions necessary for close out. The verification action will not be performed by the person who did the corrective action. Following is a listing of the verification actions referred to by number on Tables U1 through U5.

1. Review procedure or policy to ensure that corrective actions have been included.
2. Review records or documentation of action taken.
3. Review training materials to ensure that corrective actions have been included.
4. Review individual training records.
5. Observe work or training in progress.
6. Interview personnel for knowledge or understanding.
7. Observe meetings to assess communications and relationships.
8. Walk through procedures to ensure they function.
9. Inspect equipment or facilities for condition.
10. Test procedures or practices in the simulator or through drills.
11. Check equipment status and lineups.

**LONG-TERM STRATEGIES:** Following the corrective actions are summary paragraphs that discuss overall strategies to be carried out after restart as part of the Nuclear Improvement Program. These long-term strategies reflect enhancements that will further strengthen the effectiveness of management and the organization and, therefore, go beyond the specific actions required for restart and safe plant operation.

TABLE UI  
UNDERLYING ROOT CAUSE 1

Management and Organizational Effectiveness Category

Underlying Root Cause:

1. 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.

Corrective Action Objective

- 1.1 Develop and communicate senior management's vision, direction, and performance expectations to address changing needs in the Nuclear Division and changing industry standards.

Restart Corrective Actions

Verification Actions

- |  |     |
|--|-----|
| 1.1.1 Develop the Nuclear Division vision and the goals for 1989 to establish the basis for current planning.                        | 2,6 |
| 1.1.2 Modify Corporate objectives, as necessary, to support attainment of 1989 Division goals.                                       | 2,6 |
| 1.1.3 Modify the monthly Performance Monitoring - Management Information reporting system to include senior management expectations. | 1,2 |

Long-Term Strategies

Enhance the Nuclear Division planning and goals process such that the goals, objectives, and operating principles for 1990 and beyond will be integrated, aligned, and developed from the top down to the first line supervisor with implementing action plans developed from the bottom up. Provide a linkage between the organization goals and individual performance expectations.

## Corrective Action Objective

- 1.2. Establish and implement a Nuclear Division planning and scheduling process which defines specific performance objectives, assigns responsibilities and priorities, and integrates and aligns the activities.

### Restart Corrective Actions

### Verification Actions

- |       |  |       |
|-------|--|-------|
| 1.2.1 | Develop and implement the Nuclear Commitment Tracking System (NCTS)  | 1,2,6 |
| 1.2.2 | Review and verify that regulatory and compliance commitments are entered onto the Nuclear Commitment Tracking System (NCTS) database tracking system. Complete items required prior to startup.  | 1,2   |
| 1.2.3 | Develop a controlled and consolidated matrix showing implementing procedures and assigned responsibilities for all Technical Specification test requirements. Develop and implement procedures that are missing.   | 1,2   |
| 1.2.4 | Define responsibilities for surveillance testing by the following:<br>a. Develop an administrative procedure to describe overall management responsibilities for surveillance testing.<br>b. Establish that surveillance test implementing procedures include assigned responsibility. | 1     |
| 1.2.5 | Develop controlled lists to identify specific types of equipment subject to preventive maintenance, surveillance testing or other operational requirements.  | 1,2   |
| 1.2.6 | Implement an improved program for scheduling, tracking, monitoring, and trending surveillance tests at Unit 1. Consider lessons learned and the program used at Unit 2.  | 1,2,6 |

### Long-Term Strategies

Enhance the planning and scheduling process by implementing a Division-wide integrated planning process which incorporates a consistent prioritization method. Management will utilize the integrated plan to improve the process by which accountabilities are established, activities coordinated, performance monitored, and performance controlled. Follow-up evaluations will be performed to confirm that the integrated plan is working.

Corrective Action Objective

1.3 Develop and consistently apply strategic and tactical planning which takes into account resource utilization and allocation.

Restart Corrective Actions

Verification Actions

1.3.1 Develop the comprehensive Nuclear Improvement Program and resource load it for 1989.

1.2

Long-Term Strategies

Implement the Nuclear Improvement Program.

TABLE U2  
UNDERLYING ROOT CAUSE 2

Management and Organizational Effectiveness Category

Underlying Root Cause:

2. The process for 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.

Corrective Action Objective

- 2.1 Develop and implement an integrated and consistent problem solving process by which issues are effectively identified and analyzed, and corrective actions are implemented and assessed in a timely way.

Restart Corrective Actions

Verification Actions

- |   |       |
|---|-------|
| 2.1.1 All supervisors identify and report problems which they or their people are aware of and which have not been put into a tracking system. Generate problem reports for processing, evaluation, and implementation. | 1,2,6 |
| 2.1.2 Review previous Problem Reports to determine if there are any outstanding issues.   | 2     |
| 2.1.3 Review Work Requests back to 1986 to determine if there are any trends and outstanding issues.  | 2     |
| 2.1.4 Review Quality First Program (QIP) concerns and Corrective Action Requests for trends that identify outstanding issues that could affect restart and safe plant operation.  | 2     |
| 2.1.5 Review licensing changes and analyses from conversion of license in 1974 to the present for outstanding issues.   | 2     |
| 2.1.6 Review "Tell the Superintendent" information for any issues that may relate to restart.   | 2     |

## Restart Corrective Actions

## Verification Actions

- |        |  |       |
|--------|--|-------|
| 2.1.7  | Review lessons learned from Nine Mile Point Unit 2 that may identify issues applicable to Nine Mile Point Unit 1 that may relate to restart.   | 2     |
| 2.1.8  | Interview personnel to determine the existing management processes and tools, identify process problems, and obtain recommended solutions.   | 2     |
| 2.1.9  | Clarify and document the current problem reporting process for restart and provide links to other reporting and corrective action systems.   | 1,2,6 |
| 2.1.10 | Implement corrective actions 1.A.1, 1.A.2, 1.A.3, 1.A.4 and 1.A.5 listed under Specific Issue 1, Outage Management Oversight (repeated here for completeness).   |       |
| 1.A.1  | Establish and document an interim outage management organization with sufficient resources and clearly defined authority and responsibility to coordinate, integrate, and close out activities of the present outage.        |       |
| 1.A.2  | Develop and implement detailed temporary procedures 88-6, 88-7 and 88-8 that identify and integrate required restart activities including detailed checklists for completion, verification, and close out of specific tasks. |       |
| 1.A.3  | Obtain Site Operations Review Committee (SORC) approval of completed prerequisite restart issues.  |       |
| 1.A.4  | Obtain NMPC Restart Review Panel Chairman's approval that readiness for restart actions have been determined to be satisfied, including approval by NMPC CEO. Submit Readiness for Restart Report to NRC.                    |       |
| 1.A.5  | Obtain NRC Region I Administrator authorization for restart.   |       |

## Long Term Strategies

Develop a streamlined deficiency reporting system to simplify the problem identification process. Improve the capability of employees to recognize and respond to problems and concerns through training. Establish methods to actively solicit employee input with regard to problem identification and to provide feedback on actions to be taken. Finalize actions for improving the root cause and trending program. Review and upgrade, as required, the processes used to develop corrective action plans, establish accountability for implementation, assign priority, complete the actions, and assess the corrective actions against the original issue. Implement a lessons learned system throughout the Nuclear Division.

TABLE U3  
UNDERLYING ROOT CAUSE 3

Management and Organizational Effectiveness Category

Underlying Root Cause:

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

Corrective Action Objective

- 3.1 Strengthen and consistently apply management attention to the effective utilization and needs of employees.

Restart Corrective Actions

Verification Actions

- |  |       |
|--|-------|
| 3.1.1 Update the functional organization chart to define the areas of responsibility for the Nuclear Division based on the November 1988 organization chart and issue to Nuclear Division personnel. | 1,2   |
| 3.1.2 Communicate to employees the status and intended action on previous 1988 commitments made to employees during meetings.  | 1,2,6 |
| 3.1.3 Communicate the Restart Action Plan to Nuclear Division employees and obtain feedback.   | 2,6,7 |

Long-Term Strategies

Establish a program for employee development to include succession planning; career development; improved definition of position responsibilities, accountabilities, and authority; increased focus on training; and improving the personnel appraisal process to better recognize superior and substandard performance.

Corrective Action Objective

3.2 Provide training to managers and supervisors to improve their teambuilding and coaching skills in support of implementing Nuclear Division standards of performance.

Restart Corrective Actions

Verification Actions

(All Corrective Actions are to be completed after restart.)

Long-Term Strategies

Interpersonal and management skills required for managers, supervisors, and employees to do their jobs more effectively will be identified, and training and development programs will include and emphasize these skills.

Corrective Action Objective

3.3 Improve training and recruiting practices to support implementing the Nuclear Division standards of performance.

Restart Corrective Actions

Verification Actions

(All Corrective Actions are to be completed after restart.)

Long-Term Strategies

A selection process with appropriate criteria will be developed and implemented in filling positions from internal and external sources. The process will be designed to reflect the Nuclear Division's standards of performance and career development strategies. Training programs will be developed to support achievement of the desired standards and strategies.

TABLE U4  
UNDERLYING ROOT CAUSE 4

Management and Organizational Effectiveness Category

Underlying Root Cause:

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

Corrective Action Objective

- 4.1 Define and establish standards of performance within the Nuclear Division and its support groups.

Restart Corrective Actions

Verification Actions

- 4.1.1 Develop and communicate standards of performance. Example: Personnel will be held accountable for responsibilities assigned to them. 2,3,5,6,7

Long-Term Strategies

Standards of performance will be developed and communicated to each level of the organization. These standards will be used in assessments and self-assessments as the performance targets that each level of the organization will be measured against.

Corrective Action Objective

- 4.2 Establish and implement a process by which the Nuclear Division and its support groups are routinely assessed against standards of performance.

Restart Corrective Actions

Verification Actions

- 4.2.1 Develop and implement a comprehensive self-assessment program to determine readiness for restart. 2,6

Long-Term Strategies

Use the program developed during restart as a model for establishing a process to assess the implementation of standards, policies, and procedures as part of normal Nuclear Division business practices.

TABLE U5  
UNDERLYING ROOT CAUSE 5

Management and Organizational Effectiveness Category

Underlying Root Cause:

5. 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.

Corrective Action Objective

- 5.1 Develop and maintain an organizational environment which promotes team building.

Restart Corrective Actions

Verification Actions

- |   |       |
|---|-------|
| 5.1.1 Convene meetings with senior management, managers, and supervisors to promote teamwork including identifying and resolving management and organization issues.  | 1,2,7 |
| 5.1.2 Convene "town hall" meetings with employees to share information and obtain feedback on issues, problems, concerns, and direction Nuclear Division is going.  | 7     |
| 5.1.3 Communicate the Nuclear Division vision and the goals for 1989.   | 1,2,6 |
| 5.1.4 Establish a Restart Task Force that carries out tasks per charter contained in Appendix A of the Restart Action Plan.   | 1,2,6 |
| 5.1.5 Establish an integrated team of selected Nuclear Division managers and Restart Task Force representatives to meet on a regular basis to provide input to the restart effort and to resolve issues encountered in the development, implementation, and self assessment of the restart actions. | 2,7   |

Long-Term Strategies

Assess the effectiveness of the process for communicating the vision, direction, and performance expectations for 1989.

Implement joint problem-solving sessions, communications training, meeting training, and improve communication processes between management and employees to resolve issues that inhibit work or to facilitate the work processes. Perform a follow-up assessment of these activities.

Identify bureaucratic barriers and develop a plan to change them. Modify the Corporate procedures which delay implementation of change and team building.

## 2. SPECIFIC ISSUES

The second type of issues, the Specific Issues, are individually discussed in Part II. The 18 Specific Issues include:

1. Outage Management Oversight
2. Maintenance of Operator Licenses
3. Emergency Operating Procedures
4. Inservice Inspection
5. Control of Commercial Grade Items
6. Fire Barrier Penetrations
7. Torus Wall Thinning
8. Scram Discharge Volume
9. Appendix J Testing of Emergency Condenser and Shutdown Cooling Valves
10. Reactor Pressure Vessel Pressure/Temperature Curves
11. Erosion/Corrosion Program
12. Motor Generator Set Battery Chargers
13. Implementation of Long-Term Programs Related to I&C Technician Allegation Issue
14. Safety System Functional Inspection
15. Cracks in Walls and Floors
16. Feedwater Nozzles
17. Inservice Testing
18. 125 VDC System Concerns

Tables 1 through 18 provide the following for each of these Specific Issues:

- A. **ISSUE DESCRIPTION** - This is a brief review of the issue with specific elements listed. To provide a context for the issue, historical information and actions taken are summarized as required.
- B. **TABLES** - These contain the following information in tabular form to facilitate cross-referencing and completeness:

**SUB-ELEMENTS** - A more specific description of the components of a complex issue is achieved through a listing of sub-elements.

**ROOT CAUSE** - For each sub-element one or more root causes has been identified. A cross-reference between the sub-element and associated root cause(s) is provided for each sub-element.

**CORRECTIVE ACTION** - For each root cause, line management has specified corrective action to address it. In some cases, a single corrective action may address more than one root cause. All corrective actions listed will be completed prior to restart.

**VERIFICATION ACTION** - To determine if a corrective action is complete, specific action has been identified to delineate objective evidence that verifies completion. The verification action will not be performed by the person who did the corrective action. All verification actions listed will be completed prior to restart.

C. **LONG-TERM STRATEGIES** - Summary paragraphs that discuss strategies to be carried out after restart as part of the Nuclear Improvement Program. These strategies reflect enhancements that will further strengthen the effectiveness of management and the organization and go beyond the specific actions required for restart and safe plant operation.

D. **REFERENCE** - A listing of the source documents of the sub-elements is provided for each issue.

The following is an example of the numbering system used in the Specific Issue Tables:

- Sub-elements associated with Issue 2 are numbered sequentially as 2.1, 2.2, and so on.
- Root causes associated with Issue 2 are identified as 2.A, 2.B, 2.C, and so on.
- Corrective actions are numbered sequentially relative to the root cause addressed, such as 2.A.1, 2.A.2, and so on.
- Verification actions are numbered sequentially relative to the corrective action that applies, such as verification action 2.A.3.1 applies to corrective action 2.A.3.

## SPECIFIC ISSUE 1. OUTAGE MANAGEMENT OVERSIGHT

### A. ISSUE DESCRIPTION

A plan had not been developed for management oversight of outage activities including work scope identification, planning and scheduling, and verification of items required as prerequisites to the restart of Unit 1.

### B. REFER TO TABLE 1 FOR CORRELATION OF ISSUE SUB-ELEMENTS, ROOT CAUSE, CORRECTIVE ACTION, AND VERIFICATION ACTION.

Corrective actions and verification actions identified in Table 1 will be completed by restart.

### C. LONG-TERM STRATEGY

The interim Outage Management function will be integrated into the permanent Nuclear Division organization by the next scheduled Unit 1 refueling outage.

### D. REFERENCES

1. NRC letter to NMPC dated May 4, 1988
2. NRC letter to NMPC dated July 8, 1988
3. NRC letter to NMPC dated July 19, 1988
4. NRC CAL 88-17 dated July 24, 1988

TABLE I  
 SPECIFIC ISSUE 1. OUTAGE MANAGEMENT OVERSIGHT

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
<p><u>1.1</u>            A plan has not been developed for management oversight of outage activities including work scope identification, planning and scheduling, and verification of items required as prerequisites to the restart of Unit 1. (Root Cause 1.A)</p>	<p><u>1.A</u>            There was no dedicated outage management organization with sufficient resources and clearly defined functions and responsibilities to integrate and coordinate outage activities.</p>	<p><u>1.A.1</u>            Establish and document an interim outage management organization with sufficient resources and clearly defined authority and responsibility to coordinate, integrate, and close out activities of the present outage.</p>	<p><u>1.A.1.1</u>            Verify that the interim outage management organization has clearly defined authority and responsibilities and is operating with suitable resources.</p>
<p><u>1.2</u>            Items contained in the maintenance/modification backlog that are required to be completed to support the restart of Unit 1 have not been formally identified and addressed in an effective management plan (including a summary of repairs and modifications to the feedwater system). (Root Cause 1.A)</p>		<p><u>1.A.2</u>            Develop and implement detailed temporary procedures 88-6, 88-7, and 88-8 that identify and integrate required restart activities including detailed checklists for completion, verification, and close out of specific tasks.</p>	<p><u>1.A.2.1</u>            Verify that temporary procedures 88-6, 88-7, and 88-8 have been approved.</p>
			<p><u>1.A.2.2</u>            Verify that temporary procedures identify and integrate core reload, startup and power ascension prerequisites related to plant procedures, restart issues, surveillance inspections and tests, modifications, maintenance items, walkdowns, NRC commitments, and open items.</p>
			<p><u>1.A.2.3</u>            Verify the issuance of an integrated restart schedule.</p>
			<p><u>1.A.2.4</u>            Verify the implementation of the outage management group in carrying out temporary procedures such as at status meetings.</p>
			<p><u>1.A.2.5</u>            Verify that maintenance/modification restart required items (including feedwater system repairs and modifications) are identified and completed.</p>
		<p><u>1.A.3</u>            Obtain Site Operations Review Committee (SORC) approval of completed prerequisite restart issues.</p>	<p><u>1.A.3.1</u>            Verify that SORC has approved specified prerequisite restart issues.</p>

TABLE 1  
SPECIFIC ISSUE 1. OUTAGE MANAGEMENT OVERSIGHT

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
		<u>1.A.4</u> Obtain NHPC Restart Review Panel Chairman's approval that readiness for restart actions have been determined to be satisfied including approval by NHPC CEO. Submit Readiness for Restart Report to NRC.	<u>1.A.4.1</u> Verify submission of Readiness for Restart Report to NRC.
		<u>1.A.5</u> Obtain NRC Region 1 Administrator authorization for restart.	<u>1.A.5.1</u> Confirm required authorization has been received.

## SPECIFIC ISSUE 2. MAINTENANCE OF OPERATOR LICENSES

### A. ISSUE DESCRIPTION

Operator licenses were not maintained in accordance with 10CFR55 in that:

1. Some personnel did not attend some of the scheduled requalification training during the prescribed training cycle.
2. Records of requalification training attendance were not complete for some of the licensed operators.
3. Some license applications, Form NRC-398, Personal Qualifications Statement, were incorrectly submitted in that missed training was not listed on the form as required.
4. Training directives were incomplete in that they did not reflect some of the requirements of the NRC-approved licensed operator requalification regulations.

### B. REFER TO TABLE 2 FOR CORRELATION OF ISSUE SUB-ELEMENTS, ROOT CAUSES, CORRECTIVE ACTION, AND VERIFICATION ACTION.

Corrective actions and verification actions identified in Table 2 will be completed by restart.

### C. LONG-TERM STRATEGIES

Upon completion of the restart corrective actions, the operators (active license holders) will have completed the training required to operate the unit. Actions will be taken to assess the continuing need for staff license holders to retain their licenses. The impact on training resources of continuing to train these individuals will be determined and a course of action will be developed by June 30, 1989. Staff license holders, identified by this assessment, will be requalified by the end of the training cycle or before they are actively involved in operating the unit.

To upgrade the requalification program, a job and task analysis for requalification of RO's/SRO's is in progress and training material based on this analysis will be developed by July 31, 1989.

To enhance the effectiveness of operator training, a plan for rotating experienced licensed operators to assignments in the training department will be developed. The goal is to have licensed individuals participating as trainers by December 31, 1989.

D. REFERENCES:

1. NRC letter to NMPC dated March 22, 1988
2. NRC CAL 88-13 dated March 28, 1988
3. NMPC Letter to NRC dated April 21, 1988
4. NRC Letter to NMPC dated May 4, 1988
5. NRC IR No. 50-220/88-05 dated May 20, 1988
6. NRC IR No. 50-220/88-10 dated June 9, 1988
7. NRC IR No. 50-220/88-11 dated June 16, 1988
8. NMPC Letter to NRC dated June 17, 1988
9. NRC Letter to NMPC dated July 8, 1988
10. NRC Letter to NMPC dated July 19, 1988
11. NRC CAL 88-17 dated July 24, 1988

TABLE 2

SPECIFIC ISSUE 2. MAINTENANCE OF OPERATOR LICENSES

<u>SUB-ELEMENT</u>	<u>ROOT CAUSE</u>	<u>CORRECTIVE ACTION</u>	<u>VERIFICATION ACTION</u>
<u>2.1</u> Some personnel did not attend some of the scheduled requalification training during the prescribed training cycle. (Root Causes 2A and 2D)	<u>2.A</u> Operations line management did not take ownership of the licensed operator requalification program regarding:  - content - quality - attendance requirements - feedback from operators.	<u>2.A.1</u> Complete requalification training for Unit 1 licensed operators as required by the approved licensed operator training program (CAL 88-13 requirement).  <u>2.A.2</u> Establish responsibility and accountability of operations line management for operator training programs and ensure that operations line management takes ownership of these programs. Obtain regular feedback from operators on adequacy of content and quality of training received.  <u>2.A.3</u> Inform operators of expectations for attendance and conduct related to training.	<u>2.A.1.1</u> Verify completion of required training by audit of training records.  <u>2.A.2.1</u> Verify through interviews that line management has understanding of their responsibility and accountability for operator training programs.  <u>2.A.3.1</u> Verify through interviews of a random sample of operators that they understand the expectations for attendance and conduct related to training.  <u>2.A.3.2</u> Verify through observation at a training session that behavior matches expectations of conduct.
<u>2.2</u> Records of requalification training attendance were not complete for some of the licensed operators. (Root Causes 2A, 2C and 2D)			
<u>2.3</u> Some license applications, Form NRC-398, Personal Qualifications Statement, were incorrectly submitted in that missed training was not listed on the form as required. (Root Causes 2C and 2D)			
<u>2.4</u> Training directives did not effectively implement the NRC approved licensed operator requalification program. (Root Causes 2B and 2D)		<u>2.A.4</u> Establish a standing committee, the Operator Training Program Advisory Committee (OTPAC), of operators and trainers to 1) systematically define and make recommendations for resolving issues affecting operator training and 2) obtain management approval.	<u>2.A.4.1</u> Attend OTPAC meeting and observe team interactions and functioning of the process.  <u>2.A.4.2</u> Interview OTPAC members to evaluate contributions and perceptions.  <u>2.A.4.3</u> Review OTPAC meeting minutes for quality of activities.  <u>2.A.4.4</u> Interview selected operators and ascertain their knowledge of OTPAC and perceptions of its activities.

TABLE 2

## SPECIFIC ISSUE 2. MAINTENANCE OF OPERATOR LICENSES

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
	<p><u>2.B</u> The quality of training in some instances was not adequate due to inadequate management oversight, insufficient preparation by the trainers, or simulator deficiencies.</p>	<p><u>2.B.1</u> Direct the superintendent of training to provide management oversight to assure quality of training.</p>	<p><u>2.B.1.1</u> Interview the Training Superintendent - Nuclear to identify specific actions he takes to assure quality of training.</p>
		<p><u>2.B.2</u> Provide additional staffing for the training organization.</p>	<p><u>2.B.2.1</u> Verify that additional training positions have been authorized and filled.</p>
		<p><u>2.B.3</u> Identify and correct simulator deficiencies and install modifications which impact training. Document simulator fidelity differences and discuss them before training sessions to allow operators to respond as appropriate to meet training objectives.</p>	<p><u>2.B.3.1</u> Review simulator change records to verify completion. Observe simulator training, obtain OIPAC feedback, and interview operators who participate in validation and testing of hardware and software changes to determine if simulator meets training objectives.</p>
		<p><u>2.B.4</u> Revise training procedures to systematically identify, prioritize, and track changes to the simulator.</p>	<p><u>2.B.4.1</u> Verify that training procedures have been revised and are being implemented.</p>
		<p><u>2.B.5</u> Match training content with NRC-approved licensed operator requalification program content.</p>	<p><u>2.B.5.1</u> Verify the training content agrees with the NRC-approved license operator requalification program.</p>
			<p><u>2.B.5.2</u> Interview a random sample of operators to assess quality of training.</p>
		<p><u>2.B.6</u> Certify trainers in the use of training methods to increase the attention and skills of operators.</p>	<p><u>2.B.6.1</u> Observe trainers in training sessions to determine the extent of their use of the desired training methods.</p>

TABLE 2

SPECIFIC ISSUE 2. MAINTENANCE OF OPERATOR LICENSES

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
	<p><u>2.C</u> Management oversight was inadequate in assessing required resources and providing direction to personnel to assure appropriate attention to operator requalification records.</p>	<p><u>2.C.1</u> Update operator requalification records to reflect current data on attendees.</p> <p><u>2.C.2</u> Establish written procedures for handling and processing operator requalification records. Perform record functions per approved procedures.</p> <p><u>2.C.3</u> Assess resources to assure that record-keeping requirements of 10CFR55 and training directives can be satisfied.</p> <p>(See also Corrective Action 2.B.1.)</p>	<p><u>2.C.1.1</u> Verify that records have been updated.</p> <p><u>2.C.2.1</u> Verify that record functions are being performed per approved procedures.</p> <p><u>2.C.3.1</u> Review staffing for training record-keeping function to confirm that resources are adequate to maintain training records.</p>
	<p><u>2.D</u> Management oversight was inadequate in assuring that training procedures setting forth requirements for the NRC-approved licensed operator requalification program contained the needed clarity, definition, consistency, and assignment of responsibility.</p>	<p><u>2.C.4</u> Upgrade training record keeping system to provide assurance that requirements of 10CFR55 and training directives are satisfied. (Commitment in NMPC letter NHP34462 dated 4/21/88 to NRC and in NMPC letter NMPIL 0270 dated 6/17/88 to NRC.)</p> <p><u>2.D.1</u> Revise appropriate instructions and Nuclear Training Procedures NTP-10 and 11 to clarify, define, provide consistency, and state responsibilities to satisfy current requirements and commitments to NRC.</p> <p><u>2.D.2</u> Develop, approve, and implement procedure NTI-5.0 to cover the preparation, processing, approval, and issuance of Form NRC-398.</p> <p><u>2.D.3</u> Instruct appropriate personnel on the requirements contained in procedures mentioned in 2.D.1 and 2.D.2.</p> <p>(See also Corrective action 2.B.1.)</p>	<p><u>2.C.4.1</u> Verify that the record-keeping system satisfies the requirements of 10 CFR 55 and training directives.</p> <p><u>2.D.1.1</u> Verify that the appropriate instructions and procedures have been revised and satisfy the commitments to the NRC.</p> <p><u>2.D.2.1</u> Verify that the procedure has been developed and is being implemented.</p> <p><u>2.D.3.1</u> Verify that personnel have been instructed.</p>

### SPECIFIC ISSUE 3. EMERGENCY OPERATING PROCEDURES

#### A. ISSUE DESCRIPTION

Implementation of Emergency Operating Procedures (EOPs) to respond to simulated plant transients was less than adequate in that:

- a. Operators were not adequately trained in the understanding and use of EOPs during the licensed operator requalification program.
- b. There was a lack of adequate verification and validation to assure that EOPs could be implemented in an emergency.
- c. Records were incomplete regarding instructors' qualifications and certifications.

#### B. REFER TO TABLE 3 FOR CORRELATION OF ISSUE SUB-ELEMENTS, ROOT CAUSES, CORRECTIVE ACTION, AND VERIFICATION ACTION.

Corrective actions and verification actions identified in Table 3 will be completed by restart.

#### C. LONG-TERM STRATEGY

Actions will be taken by June 30, 1989 to upgrade the EOP requalification program to include not only simulator training, but also in-plant training on EOPs.

#### D. REFERENCES

1. NRC IR No. 55-220/88-22 and 50-410/88-23 dated July 8, 1988
2. NRC CAL 88-17 dated July 24, 1988
3. NMPC Letter to NRC dated August 12, 1988

TABLE 3

SPECIFIC ISSUE 3. EMERGENCY OPERATING PROCEDURES

<u>SUB-ELEMENT</u>	<u>ROOT CAUSE</u>	<u>CORRECTIVE ACTION</u>	<u>VERIFICATION ACTION</u>
<p><u>3.1</u> Operators were not adequately trained in the understanding and use of EOPs during the licensed operator requalification program. (Root Causes 3A, 3B, 3C and 3D)</p> <p><u>3.2</u> There was a lack of adequate verification and validation of plant activities to assure that those associated with EOPs could be implemented in an emergency. (Root Causes 3C and 3E)</p> <p><u>3.3</u> Records were incomplete regarding instructors' qualification and certification. (Root Cause 3C)</p>	<p><u>3.A</u> EOP classroom instruction and simulator training did not include the level of difficulty needed to develop adequate understanding and satisfactory proficiency in responding to transients. The EOPs were not exercised frequently enough during the requalification program to maintain proficiency in responding to transients.</p> <p><u>3.B</u> Lack of adequate policy describing the purpose, use, and implementation of flow path EOPs for Unit 1.</p>	<p><u>3.A.1</u> Establish and implement a comprehensive EOP training program to upgrade knowledge and proficiency of operating crew personnel.</p> <p><u>3.B.1</u> Develop and communicate a written policy on EOPs to describe their importance.</p> <p><u>3.B.2</u> Approve and implement the flow chart EOPs (Open Item 88-22-08).</p>	<p><u>3.A.1.1</u> Review lesson plans, training aids, quizzes, exams, simulator scenarios to evaluate adequacy of EOP training program to assure operators are knowledgeable and proficient in use of EOPs to respond to transients.</p> <p><u>3.A.1.2</u> Review records to verify attendance and performance in EOP training.</p> <p><u>3.A.1.3</u> Observe and evaluate operator performance of each crew on the simulator performing a random sample of EOPs to respond to transients.</p> <p><u>3.A.1.4</u> Interview operators for their understanding of bases for EOPs and their acceptance of the necessity for following the EOPs although the required actions may run counter to ingrained habits and principles.</p> <p><u>3.A.1.5</u> Interview instructors for comments on operator attitudes and performance in EOP training.</p> <p><u>3.B.1.1</u> Verify policy issued and communicated to operations and training personnel.</p> <p><u>3.B.2.1</u> Verify that flow chart EOPs have been implemented.</p>

TABLE 3

SPECIFIC ISSUE 3. EMERGENCY OPERATING PROCEDURES

<u>SUB-ELEMENT</u>	<u>ROOT CAUSE</u>	<u>CORRECTIVE ACTION</u>	<u>VERIFICATION ACTION</u>
	<u>3.C</u> Lack of clear definition of accountability and responsibility of line organizations to assure adequate teamwork, communication, and implementation of flow path EOP training in Unit 1.	<u>3.C.1</u> Clearly define responsibilities of operations line management and training department management with regard to planning and conducting training.	<u>3.C.1.1</u> Interview Operations Superintendent for his understanding of being responsible and accountable for the EOP training program. Interview Training Superintendent and instructors for their understanding of supporting the EOP training program.
		<u>3.C.2</u> Establish a policy that indicates the Operations Superintendent is responsible for management oversight of EOP training and accountable for meeting training requirements.	<u>3.C.2.1</u> Interview training instructors to obtain examples showing ownership of the EOP training program by line organization.
		<u>3.C.3</u> Refer to Issue 2, Corrective Action 2.A.4 concerning OTPAC.	<u>3.C.3.1</u> Refer to Issue 2, Verification Action 2.A.4.1 through 2.A.4.4.
		<u>3.C.4</u> Establish the standard process Training will use to notify the Operations chain of command when training differs from approved plan or does not meet operator needs. Document this process in a procedure.	<u>3.C.4.1</u> Interview training instructors for their approach to recognizing and reporting training deficiencies.
			<u>3.C.4.2</u> Review training deficiency notification file.
		<u>3.C.5</u> Revise AP-2.0 to include QA in the review of EOP procedures (Open Item 88-22-05).	<u>3.C.5.1</u> Review documentation and conduct interviews to verify completion.
	<u>3.D</u> Operations management did not take ownership of EOP training of operators.	<u>3.D.1</u> Establish responsibility and accountability of operations line management for the EOP programs and ensure that operations line management takes ownership of these programs. Obtain regular feedback from operators on adequacy of content and quality of training received.	<u>3.D.1.1</u> Verify through interviews that line management has understanding of their responsibility and accountability for operating training programs.

TABLE 3

## SPECIFIC ISSUE 3. EMERGENCY OPERATING PROCEDURES

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
	<p><u>3.E</u> Preplanning was inadequate to assure that the EOPs could be implemented in the plant. In particular, verification and validation of operating procedures to support EOPs was not effective.</p>	<p><u>3.E.1</u> Review Operating Procedures (OPs) to ensure that the sections of the OPs referenced by the EOPs, address the intended subject. Walk-through OPs to determine if procedures need to be corrected or clarified (Open Item 88-22-01).</p>	<p><u>3.E.1.1</u> Review documentation to verify completion. Walk-through a sample procedure to determine if it is clear and correct.</p>
		<p><u>3.E.2</u> Develop administrative controls to assure that procedures referenced by EOPs are not changed without assessing the possible effect on the EOPs (Open Item 88-22-01).</p>	<p><u>3.E.2.1</u> Review documentation to verify completion.</p>
		<p><u>3.E.3</u> Verify and validate EOPs to (1) evaluate compatibility with plant hardware outside the Control Room, (2) include physical walk-throughs of actions required outside the Control Room, and (3) use an adequate multidisciplinary team approach (Open Items 88-22-07 and 88-22-02).</p>	<p><u>3.E.3.1</u> Review documentation to verify completion. Walk-through sample EOPs to spot-check for hardware compatibility.</p>
		<p><u>3.E.4</u> Dedicate and administratively control plant hardware needed to perform EOP tasks (Open Item 88-22-02).</p>	<p><u>3.E.4.1</u> Review documentation to verify completion. Spot-check hardware needed to perform EOP tasks.</p>
		<p><u>3.E.5</u> Correct labeling inconsistencies identified during review of EOPs and walkdowns in the plant (Open Item 88-22-02).</p>	<p><u>3.E.5.1</u> Spot-check for correct labeling of hardware used in EOPs.</p>
		<p><u>3.E.6</u> Review EOPs for human factor concerns identified in NRC audit (Open Item 88-22-03). Classify changes. Complete changes required before restart.</p>	<p><u>3.E.6.1</u> Review documentation to verify completion.</p>
			<p><u>3.E.6.2</u> Conduct interviews as appropriate.</p>

TABLE 3

SPECIFIC ISSUE 3. EMERGENCY OPERATING PROCEDURES

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
		<u>3.E.7</u> Review ongoing EOP evaluation program and add controls to ensure quality EOPs are maintained and modified as necessary from plant operational experience and use, training, Control Room walk-throughs, and plant modifications (Open Item 88-22-04).	<u>3.E.7.1</u> Review documentation to verify completion.
		<u>3.E.8</u> Ensure that EOP input values are supported by the design basis as part of 3.E.3 and 3.E.7.	<u>3.E.8.1</u> Review documentation to verify completion.
	<u>3.F</u> Lack of management oversight of records of instructors to assure compliance with procedural requirements.	<u>3.F.1</u> Assemble required records related to instructors to fully satisfy existing procedural requirements.	<u>3.F.1.1</u> Verify that records satisfy procedural requirements.
		<u>3.F.2</u> Perform a human performance evaluation to determine why operators were unable to implement the EOPs despite the training they received and why Operations management was unaware of this condition. The evaluation will also be used to determine what other deficiencies with licensed operator training may exist as a basis for further corrective action (Open Item 88-22-03).	<u>3.F.2.1</u> Verify the existence of a report containing the results of the human performance evaluation.  <u>3.F.2.2</u> Conduct interviews as appropriate.

#### SPECIFIC ISSUE 4. INSERVICE INSPECTION

##### A. ISSUE DESCRIPTION

The Nine Mile Point Unit 1 first 10 year Inservice Inspection (ISI) interval ended in June 1986, concurrent with completion of the 1986 outage. Two months later a concern about a through wall leak on the reactor building closed loop cooling heat exchanger was identified to management. The investigation of this concern led to the discovery of an incorrect disposition of a defect reported during ISI hydrostatic testing. In July 1987 Quality Assurance conducted an audit of ISI deficiency procedures. This audit identified several deficiencies in the Deficiency Corrective Action (DCA) process. However, not all of the DCA records were reviewed during this audit. During a separate review of ISI records from the 1986 outage, a nonconformance report was initiated for five DCAs because the dispositions originally recommended by Engineering were not implemented. The five DCAs were redispositioned and closed, and the remaining open DCAs were reviewed and dispositioned. Engineering, Quality Assurance, and the ISI group did not recognize that undispositioned DCAs affected component operability and failed to report these conditions to operations management. As a result of these deficiencies and an NRC inspection of ISI, Niagara Mohawk initiated a more comprehensive investigation.

This investigation disclosed that a number of components listed in the ISI program plan were either not examined or were missing records for the exams by the end of the interval. This problem was reported in LER 88-01. The scope of the investigation was expanded, and it was determined that other examinations required by the ASME Code were not included in the program plan. Subsequent Niagara Mohawk reviews identified several omissions/errors in the first and second interval program plans. These were documented in Corrective Action Reports 2025 and 2026.

##### B. REFER TO TABLE 4 FOR CORRELATION OF ISSUE SUB-ELEMENTS, ROOT CAUSES, CORRECTIVE ACTION, AND VERIFICATION ACTION.

Corrective actions and verification actions identified in Table 4 will be completed by restart.

### C. LONG-TERM STRATEGIES

Niagara Mohawk is pursuing several longer-term initiatives aimed at strengthening the ISI program as discussed in response to the Notice of Violation (NMPC letter dated April 13, 1988). The initiatives focus on establishing the permanent organization with clearly defined responsibilities, authority, and accountability. Experience and expertise will be factored into the development of the ISI organization. Adequate staffing levels will be determined, including supervisory positions, taking into account the processes, procedures, and organizational interfaces needed to ensure a well-run program. Use of contractors will be minimized to the extent practical. When contractors are used, Niagara Mohawk oversight will be emphasized; that is, contractors will be under Niagara Mohawk supervision using Niagara Mohawk non-destructive examination (NDE) systems and procedures. Automated NDE activities will be under Niagara Mohawk control, performed by contractors using procedures that have been approved by Niagara Mohawk.

We currently plan to implement these initiatives by the next refueling outage at Nine Mile Point Unit 1.

### D. REFERENCES

1. Inspection Report 50-220/87-21 and 50-410/87-39 dated November 10, 1987
2. NRC letter to NMPC dated February 5, 1988
3. NMPC letter to NRC dated February 11, 1988
4. NMPC letter to NRC (LER 88-01) dated February 16, 1988
5. NRC letter to NMPC Notice of Violation dated March 14, 1988
6. NMPC letter to NRC Reply to Notice of Violation dated April 13, 1988
7. NMPC letter to NRC dated June 16, 1988

TABLE 4  
SPECIFIC ISSUE 4. INSERVICE INSPECTION

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
<p><u>4.1</u>  The ISI program lacked adequate management oversight. (Root Cause 4B)</p>	<p><u>4.A</u>  An adequate deficiency reporting system was not clearly understood.</p>	<p><u>4.A.1</u>  Revise QAP 14.20 and 15.01 to Initiate Occurrence Report when an NCR is issued and personnel retrained.</p>	<p><u>4.A.1.1</u>  Verify NCR issued during outage according to procedure.</p>
<p><u>4.2</u>  QC direct involvement in ISI was inadequate. (Root Cause 4C)</p>		<p><u>4.A.2</u>  Eliminate use of DCA procedure and replace by using NCR.</p>	<p>(see 4.A.1.1)</p>
<p><u>4.3</u>  QC review of ISI documentation was not timely. (Root Cause 4D)</p>		<p><u>4.A.3</u>  Revise AP-8.3 to explicitly identify notification requirements and define interfaces.</p>	<p><u>4.A.3.1</u>  Verify that procedure has been revised and is being implemented.</p>
<p><u>4.4</u>  Administrative system was inadequate to ensure notification of proper personnel. (Root Cause 4A)</p>		<p><u>4.A.4</u>  Revise NEL-017 and -029 to simplify reporting of ORs and retrain applicable personnel.</p>	<p><u>4.A.4.1</u>  Verify that procedure has been revised and is being implemented.</p>
<p><u>4.5</u>  Corporate Engineering personnel did not disposition ISI-identified deficiencies in a timely manner. (Root Cause 4D)</p>		<p><u>4.A.5</u>  Evaluate NCR results collectively for trends and underlying concerns.</p>	<p><u>4.A.5.1</u>  Verify that collective evaluation of NCR results was performed.</p>
<p><u>4.6</u>  Station management did not ensure all ISI identified deficiencies were resolved prior to plant startup. (Root Causes 4A and 4C)</p>		<p><u>4.A.6</u>  Perform a "maintenance walkdown" of large bore safety related pipe systems not included in the ISI Program.</p>	<p><u>4.A.6.1</u>  Verify that "maintenance-walkdown" of pipe systems was performed.</p>
<p><u>4.7</u>  Site management and QC failed to ensure adequate corrective action for RBCIC heat exchanger problems. (Root Causes 4A and 4C)</p>	<p><u>4.B</u>  Management failed to adequately assess resources required to carry out commitments.</p>	<p><u>4.B.1</u>  Establish an interim organization with an experienced Task Manager to implement the ISI program including dedicated engineering personnel.</p>	<p><u>4.B.1.1</u>  Verify that personnel are in place and functioning as committed.</p>
<p><u>4.8</u>  Site management review of occurrence reports failed to identify programmatic deficiencies. This is also true of reviews by other departments. Hence, the opportunities to identify and correct the issue were missed. (Root Causes 4A and 4B)</p>		<p><u>4.B.2</u>  Establish a multi-disciplinary task force to improve the administration of the Inservice Inspection Program. Nuclear Technology has principal responsibility for development, review, approval and revision of ISI program. Engineering coordinates implementation, evaluates defects, and is responsible to perform the NDE (NES performs NDE in accordance with approved program plan under the direction of Nuclear Engineering).</p>	<p><u>4.B.2.1</u>  Verify that personnel are in place and functioning as committed.</p>
<p><u>4.9</u>  Program plans did not specify all the required exams. (Root Causes 4B and 4C)</p>			

TABLE 4

SPECIFIC ISSUE 4. INSERVICE INSPECTION

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
<p><u>4.10</u> Inspection records could not be located for all exams that were scheduled to be performed. (Root Causes 4B, 4C and 4D)</p>	<p><u>4.C</u> Supervision was inadequate regarding planning, execution, and verification of work.</p>	<p><u>4.B.3</u> Assign an experienced engineer as ISI Coordinator to promote departmental objectives.</p>	<p><u>4.B.3.1</u> Verify that personnel changes are complete.</p>
<p><u>4.11</u> The schedule required examination of welds that were inaccessible and inaccurately numbered or that had been removed from the plant during the modification process. (Root Causes 4B and 4C)</p>	<p><u>4.D</u> Procedures were inadequate, especially with regard to identifying interdepartmental interfaces and to encompassing engineering involvement in providing acceptance criteria and dispositioning deficiencies.</p>	<p><u>4.B.4</u> Review all past data sheets related to Inservice Inspections; identify and perform any required inspections. Maintain as part of the Permanent Plant File.</p>	<p><u>4.B.4.1</u> Verify by surveillance that the proper inspections are performed.</p>
		<p><u>4.C.1</u> Revise ASME Section XI QA program to adequately describe the accountabilities.</p>	<p><u>4.C.1.1</u> Verify that the ASME Section XI QA program revision has been completed.</p>
		<p><u>4.C.2</u> Provide additional training on ISI procedures and requirements.</p>	<p><u>4.C.2.1</u> Verify that training has been conducted by checking records and performing interviews.</p>
		<p><u>4.C.3</u> Specify examination criteria and review with Inspectors.</p>	<p><u>4.C.3.1</u> Verify examination criteria is issued and that inspectors are using it.</p>
		<p><u>4.C.4</u> Prepare weld surface prior to examination.</p>	<p><u>4.C.4.1</u> Perform surveillance to verify that weld surfaces are suitably prepared prior to examinations.</p>
		<p><u>4.D.1</u> Prepare Engineering procedures for dispositioning indications.</p>	<p><u>4.D.1.1</u> Verify that procedures have been revised and are being implemented.</p>
		<p><u>4.D.2</u> Close all open DCAs.</p>	<p><u>4.D.2.1</u> Verify that DCAs are closed.</p>

## SPECIFIC ISSUE 5. CONTROL OF COMMERCIAL GRADE ITEMS

### A. ISSUE DESCRIPTION

During a Niagara Mohawk Quality Assurance audit in October 1986, Niagara Mohawk identified that commercial grade items had been accepted without an adequate engineering evaluation and, in some cases, without any engineering evaluation. This allowed items to be available for issue in safety-related systems for which acceptability could not be demonstrated. In order to investigate the scope of this work, Materials Engineering reviewed purchase orders for safety-related and commercial grade items back to August 1985. Items procured prior to August 1985 were previously reviewed. Items subject to re-evaluation were then formally identified, evaluated, and resolved individually.

The commercial grade issue was addressed as a possible restart item by the NRC during the equipment qualification audit on April 21, 1988. The specific Unit 1 concerns were the dedication of Okonite tape and the review of commercial grade items procured prior to August 1985. At a meeting to address commercial grade issues with the NRC in May 1988, Niagara Mohawk reviewed the Okonite tape used in equipment qualification applications and other bulk items that might have been purchased.

At a June meeting to review restart issues held at the NRC offices in King of Prussia, a status was provided on the NRC equipment qualification concern regarding Okonite tape and on the overall Long Term Material Control Program. At this meeting, Niagara Mohawk presented the Control of Commercial Grade Items as an issue that was resolved with respect to Unit 1 restart.

### B. REFER TO TABLE 5 FOR CORRELATION OF ISSUE SUB-ELEMENTS, ROOT CAUSE, CORRECTIVE ACTION, AND VERIFICATION ACTION.

Corrective actions and verification actions identified in Table 5 will be completed by restart.

### C. LONG-TERM STRATEGIES

With the formation of the Materials Engineering group in November 1987, several initiatives were undertaken to strengthen control over commercial grade items. These efforts are ongoing and include:

1. Periodically hold meetings between the Materials Engineering group and principal interface departments. The objectives of these meetings are to promote teamwork, to increase awareness of the materials procurement process, and to increase an understanding of each others' needs and responsibilities. Ongoing problems and concerns are identified and prioritized.
2. Provide training to personnel on procedures necessary to implement the commercial grade process.
3. Pursue permanent staffing of the Materials Engineering group and integration of the Materials Engineering function with other interfacing organizations such as Materials Management, Purchasing, Maintenance, Quality Assurance, Design Engineering, and Operations.
4. Complete development of a standardized database to identify procurement-related information necessary to assure material ordered satisfies engineering design requirements.

### D. REFERENCES

1. SALP Report dated April 21, 1988
2. NMPC letter to NRC dated June 30, 1988 (NMP1L 0277)
3. NRC letter to NMPC Meeting Summary dated July 19, 1988
4. NRC letter to NMPC Inspection Report 50-220/88-13 and 50-410/88-11 dated July 21, 1988

TABLE 5

## SPECIFIC ISSUE 5. CONTROL OF COMMERCIAL GRADE ITEMS

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
<u>5.1</u> Commercial grade items were accepted without adequate engineering evaluation. (Root Cause 5.A)	<u>5.A</u> Management failed to adequately assess resources and program scope needed to satisfy commercial grade dedication.	<u>5.A.1</u> Evaluate commercial grade items previously procured and assure that items of an indeterminate nature are properly identified and dispositioned.	<u>5.A.1.1</u> On a sample basis, confirm the indeterminate items are controlled per NMPC procedures NEL-017 and QAP-15.1.
		<u>5.A.2</u> Document the commercial grade evaluation and provide adequate records to close the open Quality Assurance Corrective Action Reports.	<u>5.A.2.1</u> Verify that the CARs were properly closed.
		<u>5.A.3</u> Form a Materials Engineering organization to identify requirements needed to satisfy commercial grade dedication. Have Materials Engineering perform functions per established procedures to assure control over commercial grade items.	<u>5.A.3.1</u> Verify that the Materials Engineering organization is functioning per established procedures.

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## SPECIFIC ISSUE 6. FIRE BARRIER PENETRATIONS

### A. ISSUE DESCRIPTION

On March 26, 1988, during the installation of a modification, a wood plug was discovered in a fire barrier under the Nine Mile Point Unit 1 Battery Rooms. Further investigations identified additional fire barrier penetrations which deviated from the design requirements. Therefore, Niagara Mohawk initiated a program to evaluate the adequacy of fire barriers that are of regulatory significance.

The immediate action taken by Niagara Mohawk was to develop a specification to perform walkdowns of the fire barriers. The specification outlined the requirements for the fire barrier penetrations including Engineering-approved penetration details. Walkdown teams consisting of drafting technicians, designers, and/or fire brigade personnel were instructed in the specification. These teams then performed a 100% walkdown of the fire barrier penetrations.

Prior to startup, the fire brigade will perform their revised surveillance procedure on penetrations. This will be a verification of the adequacy of the penetrations.

Additionally, a sample plan was developed to assure the adequacy of the fire barriers. Since the penetrations are only observable on the outside and we wanted to assure ourselves that we had adequate fire barriers, a sample plan to examine the penetrations internally was needed. Therefore, the sample plan consisted of destructively examining fire barrier penetrations to evaluate their adequacy compared to the requirements. The examinations have been completed and give us confidence that the fire barriers are adequately functional.

During the root cause evaluation of the fire barrier penetration discrepancies, Niagara Mohawk discovered that open items remained from an audit conducted by Gage-Babcock between 1984 and 1986. These open items covered other areas of the Fire Protection Program beyond fire barrier penetrations. Therefore, Niagara Mohawk extended its restart program to include the evaluation and close out of all Gage-Babcock audit open items.

### B. REFER TO TABLE 6 FOR CORRELATION OF ISSUE SUB-ELEMENTS, ROOT CAUSES, CORRECTIVE ACTION, AND VERIFICATION ACTION.

Corrective actions and verification actions identified in Table 6 will be completed by restart.

#### C. LONG-TERM STRATEGIES

The Fire Department's surveillance test is being revised to emphasize the importance of the integrity of the overall fire barrier rather than concentrating simply on penetration inspection. On the long term, this will assure the adequacy of the inspections to identify deviations to fire barrier integrity. Quality Assurance oversight of that surveillance test will provide added assurance of the adequacy of the fire barriers.

The design bases documents for fire barriers will be updated to reflect the as-installed condition. In the future, Nuclear Engineering will be responsible for assuring that the design data base is kept current.

These are ongoing actions aimed at preventing recurrence. As noted in our October 21, 1988 letter, the surveillance test procedure and posting of changes to design basis documents will be complete prior to restart.

#### D. REFERENCES

1. NMPC letter to NRC (LER 88-09) dated April 25, 1988
2. NRC letter to NMPC Inspection Report 50-220/88-15 dated June 7, 1988
3. NRC letter to NMPC Meeting Summary dated July 19, 1988
4. NRC letter to NMPC Meeting Summary of Enforcement Conference dated July 21, 1988
5. NRC letter to NMPC Notice of Violation dated September 19, 1988
6. NMPC letter to NRC Response to Notice of Violation dated October 21, 1988

TABLE 6

## SPECIFIC ISSUE 6. FIRE BARRIER PENETRATIONS

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
<p><u>6.1</u> Fire barrier penetrations were inadequate. (Root Causes 6B, 6D, 6E and 6J)</p> <p><u>6.2</u> Niagara Mohawk failed to detect the inadequacies in a timely manner. (Root Causes 6A, 6B, 6C, 6E, 6F, 6G, 6H, 6I, 6J, and 6K)</p>	<p><u>6.A</u> Design and station personnel lacked proper understanding of what constitutes degradation of a fire barrier.</p> <p><u>6.B</u> Present and past penetration sealing detail drawings did not provide adequate instructions.</p>	<p><u>6.A.1</u> Develop and Issue walkdown specifications/instructions; integrate Fire Department and design personnel on present walkdown teams to promote teamwork and identification of penetrations; and instruct Fire Department and design personnel.</p> <p><u>6.A.2</u> Review the adequacy of the past and present penetration sealing details and revise their associated instructions.</p> <p><u>6.A.3</u> Revise or Issue new Walkdown Specifications/Instructions if new configurations which threaten the fire barrier's rating are discovered. Review fire barriers looking for the new configurations.</p> <p><u>6.A.4</u> Revise the Breach Permit Procedure to include Nuclear Engineering and Licensing review.</p> <p><u>6.B.1</u> Revise drawing control procedures to ensure clear instructions are provided. Train personnel regarding updating drawings related to fire penetrations (As-Built vs. Construction).</p> <p><u>6.B.2</u> Update the penetration design data base defined as the penetration location drawings, penetration sealing detail drawings, and penetration computerized schedule to match the plant restart configuration.</p>	<p><u>6.A.1.1</u> Verify that walkdown Specifications/Instructions have been generated, data sheets prepared, PRs have been generated, NCRs have been generated, and work package folders have been established. Perform independent walkdowns to verify that discrepancies have been reported and resolved. Conduct interviews as appropriate.</p> <p><u>6.A.2.1</u> Verify that past penetration sealing detail problem report has been dispositioned and revised penetration sealing details generated.</p> <p><u>6.A.3.1</u> Verify that revised or new Specifications/Instructions were issued and new NCRs were generated.</p> <p><u>6.A.4.1</u> Verify that the Breach Permit Procedure has been revised to include NEL review.</p> <p><u>6.B.1.1</u> Verify that the procedures have been issued and training has been completed. Conduct interviews as appropriate.</p> <p><u>6.B.2.1</u> Verify that the penetration design data base has been updated.</p>

TABLE 6

SPECIFIC ISSUE 6. FIRE BARRIER PENETRATIONS

<u>SUB-ELEMENT</u>	<u>ROOT CAUSE</u>	<u>CORRECTIVE ACTION</u>	<u>VERIFICATION ACTION</u>
		<u>6.B.3</u> Perform visual examination on 100% of the penetrations through a required fire barrier on a per fire barrier basis and document results.	<u>6.B.3.1</u> Verify that data sheets were prepared and work package folders have been established.
		<u>6.B.4</u> Perform destructive examination and rework on those penetrations which drawing research indicates may not conform with current penetration sealing detail drawings.	<u>6.B.4.1</u> See 6.B.3.1 above.
		<u>6.B.5</u> Perform a destructive examination on a sample of the remaining penetrations and rework penetrations to establish a confidence level for the remaining penetrations. Document results and supporting justification for acceptance.	<u>6.B.5.1</u> Verify examination results were documented and that the basis for acceptance has been justified.
	<u>6.C</u> Penetration design data base was not maintained.	<u>6.C.1</u> Document on a Nonconformance Report (NCR) penetration configurations which are in nonconformance with the current penetration sealing detail drawings. Document on a Problem Report (PR) penetration configurations which may pose a threat to the fire barrier's rating. Complete required action to resolve these discrepancies.  See also corrective actions 6.A.1, 6.A.2, 6.A.3, 6.B.1 and 6.B.2	<u>6.C.1.1</u> Verify that NCRs/PRs have been generated and dispositioned; that required rework and repairs were completed via a modification work request or a work request and the NCR/PRs are closed out.
	<u>6.D</u> Management failed to recognize the scope, impact, and implementation requirements of the commitment.	<u>(6.D.1)</u> See corrective actions 6.A.1, 6.A.2, 6.A.3, 6.B.1 and 6.B.2	

TABLE 6

## SPECIFIC ISSUE 6. FIRE BARRIER PENETRATIONS

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
	<u>6.E</u> There was no Integrated program plan and definition of responsibilities.	<u>6.E.1</u> Develop and Issue a Nuclear Engineering procedure to define Engineering responsibilities as they relate to Fire Protection. Revise Site Administrative Procedures as required to define the onsite Fire Protection responsibilities.  See corrective actions 6.A.1 and 6.A.3 for interim solutions used during this outage.	<u>6.E.1</u> Verify that a Nuclear Engineering and Licensing Procedure has been generated. Verify that Site Administrative Procedures have been revised as required.
	<u>6.F</u> It was incorrectly assumed the UL test program/Engineering evaluations encompassed existing penetration configurations.	<u>(6.F.1)</u> See corrective actions 6.A.1, 6.A.2, 6.A.3, 6.B.2, 6.B.3, 6.B.4 and 6.B.5	
	<u>6.G</u> Drawing research was incomplete.	<u>(6.G.1)</u> See corrective actions 6.A.1, 6.A.2, 6.A.3, 6.B.2 and 6.B.4.	
	<u>6.H</u> Previous walkdown teams lacked an indoctrination with the Unit 1 design data base.	<u>(6.H.1)</u> See corrective actions 6.A.1 and 6.A.3.	
	<u>6.I</u> The Fire Department Surveillance Procedure only required inspection by penetration detail.	<u>6.I.1</u> Rewrite surveillance procedure to inspect the "barrier" as well as individual penetration.	<u>6.I.1.1</u> Verify that revised surveillance procedure has been generated.
	<u>6.J</u> Adequate Instructions were not provided by Engineering to investigate potential deviations during the 1985-1986 time frame.	<u>(6.J.1)</u> See corrective actions 6.A.1, 6.A.2, 6.A.3, 6.B.1, 6.B.3 and 6.B.5.	
	<u>6.K</u> There was no follow-up to the initial identification of a wood plug (June 1981) and there was no follow-up to the Gage-Babcock audit (1984-1986).	<u>6.K.1</u> Close out open items from Gage Babcock audit.	<u>6.K.1.1</u> Verify that NCRs/PRs have been generated and dispositioned; that the required rework and repairs were completed via a modification work request or a work request and the NCRs/PRs required for restart are closed out.

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## SPECIFIC ISSUE 7. TORUS WALL THINNING

### A. ISSUE DESCRIPTION

During an inspection conducted in March and April 1988 (combined Inspection Report No. 50-220/88-09 and 50-410/88-09), the NRC performed independent measurements of the torus wall thickness. The NRC's measurements were close to minimum wall required by our original stress calculations and NMPC's Mark I containment program calculations. The NRC inspectors believed that it was necessary for Niagara Mohawk to take action before the next outage (1990) and requested Niagara Mohawk to provide justification for operation until 1990.

To resolve the NRC concerns, Niagara Mohawk made a presentation at Region I regarding our actions to date, proposed actions, and justification for operation. Operation until 1990 was justified based on margins between actual wall thickness and minimum wall thickness, local pitting versus general area reduction, and actual mill test report certifications. This was followed by Niagara Mohawk's submittal of a letter to the NRC on May 27, 1988 (NMP1L 260), documenting the information presented at this meeting. Niagara Mohawk believes this issue has been resolved by providing the requested information. As indicated in the NRC's status of Unit 1 restart items, the only Niagara Mohawk action item regarding torus wall thinning was to clarify the commitment for frequency of surveillance of the measurement of the torus wall thickness. This commitment was submitted in a June 17, 1988 letter (NMP1L 0272).

### B. REFER TO TABLE 7 FOR CORRELATION OF ISSUE SUB-ELEMENTS, ROOT CAUSES, CORRECTIVE ACTION, AND VERIFICATION ACTION.

Corrective actions and verification actions identified in Table 7 will be completed by restart.

### C. LONG-TERM STRATEGY

Niagara Mohawk will take torus wall measurements on a continuing basis and investigate alternatives that will retard the corrosion and/or mitigate the consequences. Niagara Mohawk commitments were included in letters to the NRC per references 1 & 3 below.

### D. REFERENCES

1. Niagara Mohawk Letter No. NMP1L 0260 dated May 27, 1988
2. NRC Combined Inspection Report No. 50-220/88-09 and 50-410/88-09 dated June 10, 1988
3. Niagara Mohawk Letter No. NMP1L 0272 dated June 17, 1988

TABLE 7

## SPECIFIC ISSUE 7. TORUS WALL THINNING

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
<p><u>7.1</u> NRC expressed concern that torus wall thickness may be approaching minimum allowable, per NRC measurements. (Root Cause 7A)</p>	<p><u>7.A</u> Niagara Mohawk did not provide adequate management oversight including contacting cognizant personnel to resolve the NRC inspectors' concerns before they left the site.</p>	<p><u>7.A.1</u> Present information on torus wall thinning to NRC. Submit information discussed at meeting, including clarification of test frequency, in a letter to NRC.</p> <p><u>7.A.2</u> Obtain NRC concurrence with the Niagara Mohawk position stated in letter from corrective action 7.A.1.</p> <p><u>7.A.3</u> Establish the Regulatory Compliance Group as the coordinator of NRC inspections at the site and formally establish Licensing as the coordinator of NRC inspections at Salina Meadows.</p> <p><u>7.A.4</u> Obtain wall thickness measurements during the current outage to establish a baseline for shutdown conditions.</p>	<p><u>7.A.1.1</u> Verify that meeting was held and that Niagara Mohawk letter was submitted to NRC containing technical justification for continued operation.</p> <p><u>7.A.2.1</u> Verify NRC Region I acceptance of the Niagara Mohawk position on torus wall thinning.</p> <p><u>7.A.3.1</u> Verify that the Regulatory Compliance group has been established and that coordination responsibilities are documented and are being carried out.</p> <p><u>7.A.4.1</u> Verify that measurements were taken.</p>

## SPECIFIC ISSUE 8. SCRAM DISCHARGE VOLUME

### A. ISSUE DESCRIPTION

In December 1987, a concern was identified with Niagara Mohawk conformance to the June 24, 1983 Confirmatory Order relating to the scram discharge volume at Unit 1. The items under question dealt with the location of the level instrument taps and performance of a 50% control rod density test. Through discussions and meetings with the NRC, these items have been satisfactorily resolved with the exception of a periodic testing program to assure continued operability of the scram discharge volume. The periodic testing issue will be resolved by the submittal of a technical specification change to require the fill and drain test of the scram discharge volume each refueling outage if a scram has not occurred during the previous operating cycle or if the pressure boundary is breached.

### B. REFER TO TABLE 8 FOR CORRELATION OF ISSUE SUB-ELEMENTS, ROOT CAUSES, CORRECTIVE ACTION, AND VERIFICATION ACTION.

Corrective actions and verification actions identified in Table 8 will be completed by restart.

### C. LONG-TERM STRATEGY

Submit a Technical Specification Amendment Request identifying the requirements necessary to assure continued conformance with the Confirmatory Order. The Technical Specification change requires 90 to 180 days for NRC review and approval. The Technical Specification requirement is not needed until startup following the next refueling outage since the scram discharge volume has been thoroughly tested during this refueling outage to satisfy the upcoming cycle requirement.

### D. REFERENCES

1. NRC letter to NMPC dated June 24, 1983
2. NRC Inspection Report 50-2120/87-24 dated January 14, 1988
3. NRC letter to NMPC dated March 17, 1988
4. NMPC letter to NRC dated June 3, 1988
5. NMPC letter to NRC dated August 17, 1988
6. NRC letter to NMPC dated October 12, 1988

TABLE 8

SPECIFIC ISSUE 8. SCRAM DISCHARGE VOLUME

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
<p><u>8.1</u> In December 1987 a concern was identified relating to the scram discharge volume at Unit 1 dealing with the location of the level instrument taps and performance of a 50% control rod density test. (Root Cause 8.A)</p>	<p><u>8.A</u> There was inadequate follow-up to obtain formal NRC concurrence of proposed alternate methods to satisfy regulatory requirements.</p>	<p><u>8.A.1</u> Revise Nuclear Division Policy No. 3 to address the need to obtain formal NRC concurrence on Niagara Mohawk actions with respect to exceptions to new or revised regulations.</p> <p><u>8.A.2</u> Perform a test to validate the adequacy of the scram discharge volume.</p> <p><u>8.A.3</u> Obtain NRC concurrence of test.</p>	<p><u>8.A.1.1</u> Verify that revised Nuclear Division Policy No. 3 is issued and communicated.</p> <p><u>8.A.2.1</u> Verify that the test was performed with satisfactory results.</p> <p><u>8.A.3.1</u> Verify that NRC concurrence was obtained.</p>

## SPECIFIC ISSUE 9. APPENDIX J TESTING OF EMERGENCY CONDENSER AND SHUTDOWN COOLING VALVES

### A. ISSUE DESCRIPTION

Niagara Mohawk made several submittals to the NRC to resolve the Appendix J issue for Nine Mile Point Unit 1 and to revise the Technical Specifications and the FSAR to be consistent with Appendix J requirements. Niagara Mohawk submitted exemption requests for certain valves; however, it was not followed up with the NRC to obtain their approval of our Appendix J problem and exemptions. The main issues to be resolved on Appendix J are the testing of the emergency condenser condensate return valves and the valves in the suction and return lines for the shutdown cooling system. Niagara Mohawk did not consider these valves to be isolation valves which had to be local leak rate tested in accordance with Appendix J. They were considered to be extensions of containment and/or closed systems. Based on this consideration Niagara Mohawk had not performed Type C local leak rate tests on them.

Niagara Mohawk is implementing the requirements of the NRC safety evaluation for Nine Mile Point regarding Appendix J, as clarified in our July 28, 1988 letter (NMPIL 0288), except for the schedular exemption on the emergency condenser condensate return line. The justification for the schedular exemption for the emergency condenser condensate return line is provided in Niagara Mohawk's letter dated June 23, 1988 (NMPIL 0274). The NRC's letter dated October 17, 1988 granted a schedular exemption from the requirements of Appendix J to 10CFR50 for the Emergency Condenser condensate return line valves until the next refueling outage. The NRC was also requested to respond to our July 28, 1988 letter (NMPIL 0288). The NRC's letter dated November 15, 1988, in response to NMPC letter of July 28, 1988, indicated that they were in agreement with the positions documented with the following exceptions and comments: 1) the shutdown cooling suction and return line isolation valves must be tested in accordance with Appendix J (this will require submittal of an exemption request); 2) although control rod drive isolation valves (IV 301-112 and -113) do not require local leak rate testing in accordance with the requirements of Appendix J because of the water seal, this exclusion does not preclude any leak rate testing requirements for these valves that may exist under the Inservice Testing Program requirements; and 3) the NRC staff will complete its review of the containment spray drywell and torus branch line isolation valves after receipt of the procedure for ensuring a water seal of these valves.

### B. REFER TO TABLE 9 FOR CORRELATION OF ISSUE SUB-ELEMENTS, ROOT CAUSES, CORRECTIVE ACTION, AND VERIFICATION ACTION.

Corrective actions and verification actions identified in Table 9 will be completed by restart.

### C. LONG-TERM STRATEGY

Niagara Mohawk will be in receipt of required exemptions and will satisfy Appendix J requirements. This change to the Technical Specifications is administrative in nature and does not affect plant operations.

Niagara Mohawk will develop a program to satisfy schedular exemptions taken to Appendix J to be implemented at the next refueling outage.

D. REFERENCES

1. NRC Safety Evaluation related to Appendix J dated May 6, 1988
2. Niagara Mohawk Letter No. NMP1L 0274 dated June 23, 1988
3. Niagara Mohawk Letter No. NMP1L 0288 dated July 28, 1988
4. NRC Letter to NMPC dated October 17, 1988 regarding schedular exemption from the requirements of Appendix J to 10CFR50 for the Emergency Condenser Condensate Return Line Valves
5. NRC Letter to NMPC dated November 15, 1988 regarding review of July 28, 1988 letter on Appendix J Containment Leakage Rate Testing

TABLE 9

## SPECIFIC ISSUE 9. APPENDIX J TESTING OF EMERGENCY CONDENSER AND SHUTDOWN COOLING VALVES.

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
<p><u>9.1</u> Leak rate testing of the emergency condenser condensate return valves and the valves in the suction and return lines for the shutdown cooling system has not been performed, based on Niagara Mohawk's consideration of these systems as containment extensions. (Root Cause 9A)</p>	<p><u>9.A</u> Niagara Mohawk was implementing Appendix J as documented in the latest submittal to the NRC. However, Niagara Mohawk failed to obtain NRC approval of the submittal and the exemptions for the emergency condenser condensate return valves and the valves in the suction and return lines for the shutdown cooling system.</p>	<p><u>9.A.1</u> Submit exemption request for shutdown cooling isolation valves and procedure for providing water seal to containment spray isolation valves. (Approval of exemption request required before restart.)</p>	<p><u>9.A.1.1</u> Verify Niagara Mohawk submittal and NRC acceptance/approval.</p>

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## SPECIFIC ISSUE 10. REACTOR PRESSURE VESSEL PRESSURE/TEMPERATURE CURVES

### A. ISSUE DESCRIPTION

A comparison of the chemical composition of the reactor pressure vessel material surveillance coupons removed from the vessel with the chemical composition of the reactor vessel base metal revealed that the original reactor pressure vessel material surveillance coupons may have been made from a heat number different than marked.

The pressure/temperature curves currently in the Technical Specifications are more conservative than required. Therefore, there is no safety significance for not correcting the pressure/temperature curves prior to startup, as the error is in the safe direction.

The NRC's letter dated September 14, 1988, provides a safety evaluation of the Nine Mile Point Unit 1 reactor pressure vessel pressure/temperature limits which indicates that NRC agrees with NMPC's finding that the current pressure/temperature curves are conservative.

### B. REFER TO TABLE 10 FOR CORRELATION OF ISSUE SUB-ELEMENTS, ROOT CAUSES, CORRECTIVE ACTION, AND VERIFICATION ACTION.

Corrective actions and verification actions identified on Table 10 will be completed by restart.

### C. LONG-TERM STRATEGIES

Niagara Mohawk will perform engineering analysis/investigation to identify the heat number the original vessel material surveillance coupons were made from and revise the pressure/temperature curves as required.

In accordance with the Nuclear Regulatory Commission's September 14, 1988 letter, Niagara Mohawk will submit revised pressure-temperature limits, as necessary, by the end of 13 effective full-power years.

### D. REFERENCES:

1. Niagara Mohawk Letter No. NMP1L 0269 dated June 16, 1988
2. NRC letter to NMPC dated September 14, 1988

TABLE 10

SPECIFIC ISSUE 10. REACTOR PRESSURE VESSEL PRESSURE/TEMPERATURE CURVES

<u>SUB-ELEMENT</u>	<u>ROOT CAUSE</u>	<u>CORRECTIVE ACTION</u>	<u>VERIFICATION ACTION</u>
<u>10.1</u> Reactor vessel material surveillance coupons may not be the same heat number as originally marked based on lab test data following recent coupon removal from the reactor vessel. (Root Cause 10.A)	<u>10.A</u> Error committed by Combustion Engineering or General Electric personnel who improperly identified the reactor vessel material coupon heat number in the original records when the records were first compiled in the mid-sixties.	<u>10.A.1</u> Submit a letter to the NRC technically justifying that, even if there has been a mix-up in the heat numbers for the reactor pressure vessel material coupons, it is in the conservative direction. Our pressure/temperature curves currently in Technical Specifications require a more conservative (higher) temperature for pressurization than would be required for pressure/temperature curves correlated to the correct heat number.	<u>10.A.1.1</u> Verify that Niagara Mohawk submitted a letter to the NRC containing justification for operation with present pressure/temperature curves.
		<u>10.A.2</u> Obtain NRC concurrence to the Niagara Mohawk letter dated 6/16/88 related to 10.A.1 above.	<u>10.A.2.1</u> Verify Niagara Mohawk receipt of NRC letter concurring with our justification.

## SPECIFIC ISSUE 11. EROSION/CORROSION PROGRAM

### A. ISSUE DESCRIPTION

In combined Inspection Report No. 50-220/88-09 and 50-410/88-09, the NRC identified a concern regarding the implementation of the erosion/corrosion program at Nine Mile Point Unit 1. As noted in Inspection Report 50-220/88-09, it was the opinion of the NRC examiner that the procedures for taking balance of plant piping measurement data did not establish adequate controls over the process to provide meaningful data and assure repeatability of thickness measurements.

The NRC examiner was given incomplete raw data not reviewed or accepted by Nuclear Engineering and Licensing. However, the concerns identified did indicate the need for increased oversight of contractor activities.

The Erosion/Corrosion Program as developed and implemented, meets NMPC commitments made in response to IE Bulletin 87-01 and exceeds the industry (NUMARC) mandated practices. The program enhancements that satisfy NRC concerns have been implemented.

### B. REFER TO TABLE 11 FOR CORRELATION OF ISSUE SUB-ELEMENTS, ROOT CAUSES, CORRECTIVE ACTION, AND VERIFICATION ACTION.

Corrective actions and verification actions identified in Table 11 will be completed by restart.

### C. LONG-TERM STRATEGY

This program is ongoing and may be expanded to include other Erosion/Corrosion concerns affecting plant reliability to generate power.

### D. REFERENCES

1. Inspection Report 88-09 dated June 10, 1988
2. NMPC Letter to NRC dated July 15, 1988

TABLE II

SPECIFIC ISSUE 11. EROSION/CORROSION PROGRAM

<u>SUB-ELEMENT</u>	<u>ROOT CAUSE</u>	<u>CORRECTIVE ACTION</u>	<u>VERIFICATION ACTION</u>
<u>11.1</u> The Nine Mile Point Unit 1 general procedures established for data identification and repeatability were difficult to comprehend and not fully understood by reviewers of the program. (Root Causes 11.A, 11.B and 11.C)	<u>11.A</u> The general Nine Mile Point Unit 1 gridding procedures were difficult to comprehend.	<u>11.A.1</u> Revise CB&I Procedure SC-1 to address consistent marking of piping and components to assure repeatability of measurement location.	<u>11.A.1.1</u> Verify that revised procedure adequately describes the requirements for a grid marking system.
	<u>11.B</u> The contractor's instructions were weak. Loss of repeatability of data could occur if the instructions were not implemented correctly.	<u>11.B.1</u> Require contractor to instruct personnel on proper grid marking in accordance with the revised procedure.	<u>11.B.1.1</u> Verify data sheets adequately address grid marking compliance with procedure. Perform overview sample re-examination to confirm data repeatability.
	<u>11.C</u> Niagara Mohawk Site oversight and coordination of the two site contractors was weak.	<u>11.C.1</u> Conduct surveillance of contractors' Erosion/Corrosion grid marking activities during the current outage to assure procedure implementation in accordance with Niagara Mohawk's approved Erosion/Corrosion Program	<u>11.C.1.1</u> Verify surveillance was performed and documented to confirm adequacy of procedure implementation.

## SPECIFIC ISSUE 12. MOTOR GENERATOR SET BATTERY CHARGERS

### A. ISSUE DESCRIPTION

In preparation for a 10CFR50.59 review, Engineering, Operations, and Licensing began a complete review and verification of the 125V DC Electrical System Design Basis. During this review, it was discovered that the current safety classification of the motor generator set battery chargers did not properly reflect their intended post-accident function. In 1983, the motor generator set battery chargers were reclassified to non-safety related. Consequently, for approximately five years, work had been periodically performed without requiring the application of 10CFR50 Appendix B.

### B. REFER TO TABLE 12 FOR CORRELATION OF ISSUE SUB-ELEMENTS, ROOT CAUSES, CORRECTIVE ACTION, AND VERIFICATION ACTION.

Corrective actions and verification actions identified in Table 12 will be completed by restart.

### C. LONG-TERM STRATEGY

As part of design base improvement program, implement improvements in the detail and control of design bases documentation for plant systems (Refer to Specific Issue 14).

### D. REFERENCES:

1. LER 88-013-00
2. NRC letter dated July 19, 1988

TABLE 12

## SPECIFIC ISSUE 12. MOTOR GENERATOR SET BATTERY CHARGERS

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
<p><u>12.1</u> Motor generator set battery chargers were inappropriately reclassified to non-safety related. (Root Cause 12A and 12B)</p>	<p><u>12.A</u> Insufficient and inadequate documentation was accepted for justifying the reclassification.</p>	<p><u>12.A.1</u> Complete Appendix B determination to reclassify motor generator set battery chargers as safety-related components. Update the Q List.</p>	<p><u>12.A.1.1</u> Verify completion of an Appendix B Determination that will reclassify the motor generator set battery chargers as safety-related.</p>
		<p><u>12.A.2</u> Issue and have involved personnel sign a Lessons Learned Transmittal detailing the concern and cautionary statements about using inadequate documentation.</p>	<p><u>12.A.2.1</u> Verify that involved personnel understand the concern.</p>
		<p><u>12.A.3</u> Perform cross-disciplinary review of system and major component level determinations that have been made which downgraded components from safety-related to non-safety-related to ensure adequate justification and accuracy. Document results in a report.</p>	<p><u>12.A.3.1</u> Verify report issuance and acceptance by responsible managers.</p>
		<p><u>12.A.4</u> Investigate motor generator set battery charger components installed since 1983 to verify that quality requirements of 10CFR50 Appendix B were met. Components will be verified or replaced. Document results.</p>	<p><u>12.A.4.1</u> Verify that the Engineering Report has been issued, detailing the investigation and resolution of components replaced since 1983.</p>
	<p><u>12.B</u> The design bases of the 125 VDC system was not adequately documented and controlled.</p>	<p><u>12.B.1</u> Prepare a Design Report providing the design bases for the battery chargers.</p>	<p><u>12.B.1.1</u> Verify these documents are appropriately filed and retrievable.</p>
	<p>NOTE: Refer to Specific Issue 18 for related information.</p>	<p><u>12.B.2</u> Use excerpts from the Design Report to update the FSAR and other configuration documents.</p>	<p><u>12.B.2.1</u> Verify issuance of Design Report and Licensing Document Change Notice (LDCN) for FSAR update and update of other configuration documents.</p>

SPECIFIC ISSUE 13. IMPLEMENTATION OF LONG-TERM PROGRAMS RELATED TO I&C TECHNICIAN ALLEGATION ISSUE

A. ISSUE DESCRIPTION

The process used to assess and implement long-term programs related to Management Effectiveness did not meet expectations.

B. REFER TO TABLE 13 FOR CORRELATION OF ISSUE SUB-ELEMENTS, ROOT CAUSES, CORRECTIVE ACTION, AND VERIFICATION ACTION.

Corrective actions and verification actions identified in Table 13 will be completed by restart.

C. LONG-TERM STRATEGY

This specific issue deals with management effectiveness concerns that have also been addressed in some detail earlier in Part II as Underlying Root Causes under the Management and Organizational Effectiveness category. Therefore, the long-term strategies contained in Tables U2, U3, and U5 under corrective action objectives 2.1, 3.1, and 5.1 also apply to Specific Issue 13.

D. REFERENCES

1. NMPC Letter to NRC dated August 15, 1986
2. NMPC Letter to NRC dated August 31, 1986
3. NMPC Presentation to NRC on October 18, 1988

TABLE 13

SPECIFIC ISSUE 13. IMPLEMENTATION OF LONG-TERM PROGRAMS RELATED TO I&C TECHNICIAN ALLEGATION ISSUE

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
<p><u>13.1</u> The process used to assess and implement the long-term program related to Management Effectiveness did not meet expectations regarding:</p> <ul style="list-style-type: none"> <li>a. Bringing forward and resolving concerns</li> <li>b. Teamwork</li> <li>c. Root causes of management and organizational type issues.</li> </ul> <p>(Root Causes 13.A, 13.B and 13.C)</p>	<p><u>13.A</u> The Issue discovery process was less than adequate.</p>	<p><u>13.A.1</u> Implement the process described in Restart Action Plan Part I, Sections 1, 2 and 3.</p> <p><u>13.A.2</u> Implement the corrective actions listed under Underlying Root Cause #2 and Corrective Action Objective 2.1 (repeated here for completeness):</p> <p><u>2.1.1</u> All supervisors identify and report problems which they or their people are aware of and which have not been put into a tracking system. Generate Problem Reports for processing, evaluation, and implementation.</p> <p><u>2.1.2</u> Review previous Problem Reports to determine if there are any outstanding issues.</p> <p><u>2.1.3</u> Review Work Requests back to 1986 to determine if there are any trends and outstanding issues.</p> <p><u>2.1.4</u> Review Quality First Program (QIP) concerns and Corrective Action Requests for trends that identify outstanding issues that could affect restart and safe plant operation.</p> <p><u>2.1.5</u> Review licensing changes and analyses from conversion of license in 1974 to the present for outstanding issues.</p>	<p><u>13.A.1.1</u> Review records or documentation of action taken.</p> <p><u>13.A.2.1</u> Review records or documentation of action taken and interview personnel as appropriate.</p>

TABLE 13

SPECIFIC ISSUE 13. IMPLEMENTATION OF LONG-TERM PROGRAMS RELATED TO  
1&C TECHNICIAN ALLEGATION ISSUE

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
		<p><u>2.1.6</u> Review "Tell the Superintendent" information for any issues that may relate to restart.</p>	
		<p><u>2.1.7</u> Review lessons learned from Nine Mile Point Unit 2 that may identify issues applicable to Nine Mile Point Unit 1 that may relate to restart.</p>	
		<p><u>2.1.8</u> Interview personnel to determine existing management processes and tools, identify process problems and obtain recommended solutions.</p>	
		<p><u>2.1.9</u> Clarify and document the current problem reporting process for restart and provide links to other reporting and corrective action systems.</p>	
		<p><u>2.1.10</u> Implement corrective actions 1.A.1, 1.A.2, 1.A.3, 1.A.4 and 1.A.5 listed under Specific Issue 1, Outage Management Oversight.</p>	
	<p><u>13.B</u> Buy-in was less than adequate.</p>	<p><u>13.B.1</u> Implement the buy-in process under development and implementation of the Restart Action Plan using the strategies described in the Introduction and Appendix A, "Task Force Charter," contained in this Plan.</p>	<p><u>13.B.1.1</u> Review records, interview personnel as appropriate or observe meetings to assure communication and relationships.</p>
	<p><u>13.C</u> The root cause analysis method and corrective action accountability were less than adequate.</p>	<p><u>13.C.1</u> Implement root cause analysis methods and corrective action accountability as described in Restart Action Plan Part I, Sections 2 and 3.</p>	<p><u>13.C.1.1</u> Review records or documentation of action taken.</p>

## SPECIFIC ISSUE 14. SAFETY SYSTEM FUNCTIONAL INSPECTION

### A. ISSUE DESCRIPTION

A Safety System Functional Inspection (SSFI) was conducted at Nine Mile Point Unit 1 by the NRC from September 12, 1988 through October 7, 1988. By letter dated October 26, 1988, the NRC provided a summary of the significant findings from the SSFI in advance of the formal SSFI Inspection Report so that appropriate corrective actions could be incorporated into the Nine Mile Point Unit 1 restart planning activities.

On November 17, 1988 Niagara Mohawk met with the NRC and provided its preliminary plans for responding to the specific restart findings. Several additional items were also identified by the NRC as requiring resolution prior to restart. Niagara Mohawk submitted a response to issues 1.b and 1.e, including calculations, on December 8, 1988.

Niagara Mohawk's December 16, 1988 letter addresses the inspection findings in detail. The specific findings and Niagara Mohawk's responses are summarized in Table 14.

### B. REFER TO TABLE 14 FOR CORRELATION OF ISSUE SUB-ELEMENTS, ROOT CAUSES, CORRECTIVE ACTION, AND VERIFICATION ACTION.

Corrective actions and verification actions identified in Table 14 will be completed by restart.

### C. LONG-TERM STRATEGY

Develop and implement a design bases reconstitution and configuration management upgrade program. This program includes the development of system design bases documents that would include system performance requirements including surveillance test requirements and acceptance criteria. These will become ongoing programs. We have not finalized the scope of this effort. We expect to have preliminary plans available by mid-1989. Additional information addressing programmatic findings is contained in Reference 5.

### D. REFERENCES

1. NMP1 SSFI, NRC Inspection 88-201 Exit Meeting Minutes dated October 17, 1988
2. NRC letter to NMPC dated October 26, 1988 (Report 50-220/88-201)
3. NRC letter to NMPC dated November 23, 1988 (Summary of meeting with Niagara Mohawk)
4. NMPC letter to NRC dated December 8, 1988
5. NMPC letter to NRC dated December 16, 1988

TABLE 14

SPECIFIC ISSUE 14. SAFETY SYSTEM FUNCTIONAL INSPECTION

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
<p><u>14.1</u> The Technical Specification limiting condition for operations regarding inoperable core spray spargers may not be consistent with the Appendix K analysis. (Root Cause 14.A)</p>	<p><u>14.A</u> Standards, policies and administrative controls were less than adequate with regard to controlling documents, configuration management, establishment/maintenance of detailed design information, and lessons learned.</p>	<p><u>14.A.1</u> Submit a revised Technical Specification to reconcile the limiting condition for operation with sparger operability</p>	<p><u>14.A.1.1</u> Verify the submittal.</p>
<p><u>14.2</u> Analysis and testing of the Core Spray System did not demonstrate performance in accordance with the licensing basis with regard to net positive suction head during large break LOCAs with containment spray in operation. (Root Cause 14.A)</p>		<p><u>14.A.2</u> Perform calculations to verify operability of the Core and Containment Spray Systems under the stated conditions.</p>	<p><u>14.A.2.1</u> Verify that calculations were performed and the results accepted.</p>
<p><u>14.3</u> Vortexing analyses did not account for the interactive affects of the two pump suction in proximity to each other. (Root Causes 14.A)</p>		<p><u>14.A.3</u> Perform calculations to assess potential for vortexing and associated impact.</p>	<p><u>14.A.3.1</u> Verify that calculations were performed and the results accepted.</p>
<p><u>14.4</u> System pump curves did not appear to be controlled or validated by testing over the full range of expected flows. (Root Cause 14.A)</p>		<p><u>14.A.4</u> Control the pump curves and include them in the Configuration Management program. Perform a one-time test of each core spray system.</p>	<p><u>14.A.4.1</u> Verify the curves are being controlled and are part of configuration management program. Verify acceptable test results.</p>
<p><u>14.5</u> System resistance curves did not account for all components in the system. (Root Cause 14.D)</p>		<p><u>14.A.5</u> Perform calculations to account for components.</p>	<p><u>14.A.5.1</u> Verify the calculations are performed and the results accepted.</p>
<p><u>14.6</u> Potential flow diversion through combined pump discharge relief valve was not considered in the analysis. (Root Causes 14.A)</p>		<p><u>14.A.6</u> Perform calculations to address potential impact of flow diversion.</p>	<p><u>14.A.6.1</u> Verify the calculations are performed and the results accepted.</p>
		<p><u>14.A.7</u> Revise the alarm setpoints to prevent annunciation and revise operating procedures to address annunciation when strainers clog.</p>	<p><u>14.A.7.1</u> Verify the setpoints are revised and procedures changed.</p>
		<p><u>14.A.8</u> Perform calculations to address core spray strainer high differential alarm setpoint.</p>	<p><u>14.A.8.1</u> Verify the calculations are performed and results accepted.</p>
		<p><u>14.A.9</u> Evaluate the alarm setpoint and revise it and associated procedures if necessary.</p>	<p><u>14.A.9.1</u> Verify the evaluation and associated follow-up actions were performed.</p>
		<p><u>14.A.10</u> Revise procedures for filling torus.</p>	<p><u>14.A.10.1</u> Verify that the procedures are revised.</p>

TABLE 14

SPECIFIC ISSUE 14. SAFETY SYSTEM FUNCTIONAL INSPECTION

<u>SUB-ELEMENT</u>	<u>ROOT CAUSE</u>	<u>CORRECTIVE ACTION</u>	<u>VERIFICATION ACTION</u>
<u>14.7</u> The Core Spray System alarm set points and procedural responses appeared inappropriate for the following reasons: The core spray pump low suction and discharge pressure alarms were set at values that would be expected to occur during the large break LOCAs and the alarm response directed that the affected pumps be secured even though the system remained operable. (Root Cause 14.A)		<u>14.A.11</u> Relabel the Emergency Operating Procedure's graphs to clarify applicability.	<u>14.A.11.1</u> Verify that the procedures are revised.
		<u>14.A.12</u> Revise the Emergency Operating Procedure to clarify water level indication limitations.	<u>14.A.12.1</u> Verify that the procedures are revised.
		<u>14.A.13</u> Evaluate the system capabilities and revise Technical Specification Bases as appropriate.	<u>14.A.13.1</u> Verify the evaluation was performed and appropriate follow-on activities pursued.
<u>14.8</u> The strainer high differential pressure alarm was set at a value that would be expected to occur during large break LOCAs and the alarm response directed that the affected line be secured even though the system remained operable. (Root Cause 14.A)		<u>14.A.14</u> Evaluate system capability.	<u>14.A.14.1</u> Verify the evaluation was performed.
		<u>14.A.15</u> Perform calculations to demonstrate capability.	<u>14.A.15.1</u> Verify the calculations are performed.
<u>14.9</u> The core spray high pressure alarm was set at a pressure that would be received if the relief valve failed to open prior to system injection and the alarm response was to secure both sets of pumps in the line. This single failure could disable both pump sets in a sparger. (Root Cause 14.A)		<u>14.A.16</u> A) Control the pump curves and include them in the Configuration Management Program.  B) Perform a test to validate the curves during start-up.	<u>14.A.16.1</u> A) Verify the curves are being controlled and in Configuration Management.  B) Verify the test results are acceptable.
		<u>14.A.17</u> Reassess the design of the "Keep Fill" System."	<u>14.A.17.1</u> Verify that a reassessment is done.
		<u>14.A.18</u> Modify the instrument range.	<u>14.A.18.1</u> Verify the range is modified.
		<u>14.A.19</u> Assess the potential impact of pump cycling.	<u>14.A.19.1</u> Verify the assessment is complete.

TABLE 14

## SPECIFIC ISSUE 14. SAFETY SYSTEM FUNCTIONAL INSPECTION

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
<p><u>14.10</u> The Emergency Operating Procedures (EOPs) did not appear to provide adequate guidance for Core Spray System operations in the following instances: The procedure for filling the torus using the Core Spray System would not work if the Core Spray System initiation signal was present or the system was in operation. Both of these conditions could be expected during EOP scenarios. (Root Cause 14.A)</p>	<p><u>14.B</u> Procedures were less than adequate in that data/computations derived from or used to support them were wrong or incomplete.</p> <p><u>14.C</u> Training was less than adequate with regard to determining valve position locally.</p>	<p><u>14.B.1</u> Reaffirm previous conclusions that Niagara Mohawk procedures are not required for all safety-related vendor manual recommendations.</p> <p><u>14.C.1</u> Provide training on local valve position indication to non-licensed operators.</p>	<p><u>14.B.1.1</u> Verify that the conclusion is reaffirmed.</p> <p><u>14.C.1.1</u> Verify that training has been conducted.</p>
<p><u>14.11</u> The graphs for cautioning whether pump section pressure was close to the minimum allowable NPSH or vortexing limits were for individual pumps, but the available flow indication was on the common discharge line for both pump sets. (Root Cause 14.A)</p>	<p><u>14.D</u> Audits/evaluations lacked technical depth.</p>	<p><u>14.D.1</u> Implement a permanent repair to the valve and evaluate the impact of the injection holes.</p> <p><u>14.D.2</u> Address all those items determined to have a potential impact on plant start-up.</p>	<p><u>14.D.1.1</u> Verify the repair and evaluation are complete.</p> <p><u>14.D.2.1</u> Verify that an evaluation has been performed.</p>
<p><u>14.12</u> The limitations for RPV level indication failed to identify that some level instruments shared a common RPV tap with the Core Spray System and would be unreliable during Core Spray operation. (Root Cause 14.A)</p>		<p><u>14.D.3</u> Evaluated/address each of the specific material deficiencies identified.</p>	<p><u>14.D.3.1</u> Verify that the specific deficiencies have been evaluated.</p>
<p><u>14.13</u> Analyses were inadequate and testing of the High Pressure Coolant Injection (HPCI)/Feedwater (FW) System did not demonstrate system performance as described in licensing documents for the following reasons: Independent calculations performed by the team indicated that the condensate and booster pumps would not provide the flow specified in the Technical Specification Bases at a reactor pressure of 450 psig because of shut-off head limitations. (Root Cause 14.A)</p>		<p><u>14.D.4</u> Assess preliminary issues raised by NRC during SSFI not identified in their letter of October 26, 1988. Determine if any need to be resolved prior to restart.</p>	<p><u>14.D.4.1</u> Verify that assessment has been completed and that any additional issues are included as restart requirements.</p>

TABLE 14

SPECIFIC ISSUE 14. SAFETY SYSTEM FUNCTIONAL INSPECTION

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
<p><u>14.14</u> No analyses existed to support the FSAR statement that electric power for the HPCI/FH System would be available from Bennetts Bridge upon a loss of normal site power to the pumps. The team was concerned that the ADS System would initiate before the HPCI/FH System would be available. (Root Cause 14.A)</p>			
<p><u>14.15</u> No analysis was provided to show that necessary water levels in the condensate storage tank could be adequately transferred to the hot well without vacuum to support HPCI/FH pump flows. (Root Cause 14.A)</p>			
<p><u>14.16</u> The pump curves used for HPCI/FH testing appeared to be uncontrolled, limited to the motor-driven feedwater pumps (excluding the booster and condensate pumps), and failed to account for a modification which changed impellers to ones with different operating characteristics. (Root Cause 14.A)</p>			
<p><u>14.17</u> The design of the Core Spray "Keep Fill System" did not appear to prevent water hammer throughout the system and existing testing did not ensure that water hammer would not occur under certain LOCA conditions. (Root Cause 14.A)</p>			
<p><u>14.18</u> The use of "Furmanite" to repair HPCI/FH manual isolation valve 30-10 appeared to be excessive, performed without adequate analyses and may not be a suitable repair to support plant startup. (Root Cause 14.D)</p>			

TABLE 14

SPECIFIC ISSUE 14. SAFETY SYSTEM FUNCTIONAL INSPECTION

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
<p><u>14.19</u> The range of Control Room flow instrumentation for the Core Spray System was not adequate to measure the full range of expected system flows. (Root Cause 14.A)</p>			
<p><u>14.20</u> The motor-driven feedwater pumps were not designed to support the frequent starting that may be required by the HPCI/FW System Reactor Water Level Control Modifications and Operating Procedures. (Root Cause 14.A)</p>			
<p><u>14.21</u> Internal responses to Industry Information such as NRC Information Notices, GE Services Information Letters and INPO Information did not always appear to be timely or sufficiently researched. (Root Cause 14.D)</p>			
<p><u>14.22</u> The written periodic Maintenance Program did not include all recommended maintenance activities of the Equipment Vendor Manuals or the actual periodic maintenance being performed on safety systems during the outage. (Root Causes 14.A and 14.B)</p>			
<p><u>14.23</u> Several material deficiencies were identified by the team during their walkdown of the systems which had not been previously identified, evaluated, and prioritized for correction. (Root Cause 14.D)</p>			
<p><u>14.24</u> Non-licensed operator training did not include a programmed topic for the determination of valve position locally. This issue was previously identified during Inspection Report 50-410/88-10 for Nine Mile Point Unit 2. (Root Cause 14.C)</p>			

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## SPECIFIC ISSUE 15. CRACKS IN WALLS AND FLOORS

### A. ISSUE DESCRIPTION

There are four primary issues, and they are described as follows:

- 1) Cracks in concrete wall in southwest corner of Reactor Building on floor elevation 237'-0". Problem Report #394 was initiated on August 20, 1988 with regard to these cracks. Inspections of these cracks, as well as others, were conducted under the direction of NMPC Nuclear Engineering and Licensing from September 13 through September 15, 1988. These cracks varied in length from 15" to 64" and were a maximum of 3/16" wide. The cause, structural significance, and radiological (shielding) concerns are to be assessed.
- 2) Dampness/evidence of leakage on underside of Spent Fuel Pool. This issue was identified and documented in Problem Report #188 developed in October 1987. Particularly in the vicinity of Column/Column Rows N-9 and L-9, there is evidence of dampness and leakage or dormant evidence thereof. The source of leakage, its duration and rate of this leak, as well as the short- and long-term implication regarding the structural degradation of the reinforced concrete, are to be assessed.
- 3) Cracks in the ceilings and walls of steam tunnel. These cracks were noticed and reported during the course of inspections of reinforced concrete and masonry walls at Nine Mile Point Unit 1. This inspection was conducted from September 13 through September 15, 1988. The cracks were located at mid-span of each bay in the ceiling and south wall of the tunnel and were orientated north/south and vertical, respectively. Their lengths were approximately the width of the tunnel for the ceiling and the height of the wall. The cause and structural significance are to be assessed.
- 4) Cracks in masonry walls. Majority of the masonry walls in the Nine Mile Point Unit 1 are designed and erected to serve as partitions, fire barriers, or for shielding purposes. These walls do not serve to resist the primary building forces. Cracks have been observed in masonry walls throughout the plant.

### B. REFER TO TABLE 15 FOR CORRELATION OF ISSUE SUB-ELEMENTS, ROOT CAUSES, CORRECTIVE ACTION, AND VERIFICATION ACTION.

Corrective actions and verification actions identified in Table 15 will be completed by restart.

### C. LONG-TERM STRATEGIES

Develop a procedure to indicate that, when cracks are observed, they are to be identified, reported and evaluated. The procedure will be implemented within six months following startup.

For Spent Fuel Pool leakage, examine feasibility of developing monitoring program to ascertain times (dates) and duration of leakage and rate of leak. Review calculation of spent fuel pool structure to determine state of stress (design margins) and predict degree and rate of degradation of concrete reinforcement.

We currently plan to collect data during the next operating cycle and complete our evaluation by the end of the next refueling and maintenance outage.

### D. REFERENCES

1. NMPC Letter to NRC dated December 2, 1988

TABLE 15

## SPECIFIC ISSUE 15. CRACKS IN WALLS AND FLOORS

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
<p><u>15.1</u> Cracks observed in reactor building wall along Column Row K between elevation 237' and 249' and between Column Row 4 and 5. Lengths vary from about 15" to about 64", width varies from hairline to about 3/16 inch. (Root Cause 15.A)</p>	<p><u>15.A</u> Restraining forces at the top and at the bottom of the wall and in the plane of the wall. These forces developed as a result of shrinkage during curing and/or expansion/contraction of concrete above and below the wall due to temperature fluctuations of plant operation.</p>	<p><u>15.A.1</u> Review/perform calculations to determine effect of cracks. Repair as necessary.</p>	<p><u>15.A.1.1</u> Verify acceptable results of calculation and/or repair.</p>
<p><u>15.2</u> Cracks observed in turbine building wall along Column Row J between elevation 237' and 249' and between Column Row 4 and 5. Lengths vary up to about 64", width varies from hairline to about 3/16". (Root Cause 15.A)</p>	<p><u>15.B</u> Presence of damp areas - nominal migration of water through the concrete; the source is speculated to be the Spent Fuel Pool. Presence of orange-colored spots - possibly corrosion of reinforcing steel or reinforcing steel "chairs." Presence of cracks - normal shrinkage cracks. These cracks do not appear to be the result of overstress.</p>	<p><u>15.B.1</u> a) Assess U.S. Tool &amp; Die calculations to determine current state of stresses in concrete and design margin associated with reinforcing steel. b) Evaluate effect of postulated corrosion rate on performance of reinforcing steel and concrete.</p>	<p><u>15.B.1.1</u> a) Verify acceptable results of calculation. b) Verify the report documenting evaluation results has been issued.</p>
<p><u>15.3</u> Dampness and/or evidence of leakage was observed on underside of spent fuel pool slab as follows:</p> <ul style="list-style-type: none"> <li>• Near Column L-9 it appears that water had leaked through the concrete. Calcium deposits were also observed as well as two small orange-colored spots.</li> <li>• Near Column N-9 the concrete was damp. Water was dripping from the outside of the capped off, tell-tale pipe. The pattern of the dampness on the concrete suggests the presence of very small (hair-line) cracks, small in length and random in pattern. (Root Cause 15.B)</li> </ul>	<p><u>15.C</u> Shrinkage during curing and/or tensile stress associated with temperature fluctuation of plant operation.</p>	<p><u>15.B.2</u> Monitor rate of leakage at areas that are leaking before and after startup in order to establish the source of leakage, thus determining if any further corrective action is required.</p>	<p><u>15.B.2.1</u> Verify that monitoring program has been established.</p>
<p><u>15.4</u> Cracks observed in ceiling and walls of steam tunnel between Column Rows G and H and Columns 6 and 11. Cracks ran north/south and were located at approximately mid-bay in each bay. (Root Cause 15.C)</p>		<p><u>15.C.1</u> Review/perform calculations to verify the adequacy of structural functions. No corrective action required.</p>	<p><u>15.C.1.1</u> Verify acceptable results of calculation.</p>

TABLE 15

SPECIFIC ISSUE 15. CRACKS IN WALLS AND FLOORS

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
<u>15.5</u> Cracks in masonry walls. Cracks have been identified in several masonry walls throughout the plant. (Root Cause 15.D)	<u>15.D</u> Cracks may develop in a masonry wall due to any of the following reasons: <ol style="list-style-type: none"> <li>1. Temperature and shrinkage.</li> <li>2. Penetrations in the wall.</li> <li>3. Differential building movement.</li> <li>4. Unanticipated in-plane loads.</li> <li>5. Vibrations.</li> </ol>	<u>15.D.1</u> Perform reanalysis of the walls to check their structural integrity for the cracks identified. This may result in a decision to use the wall as-is or provide structural repairs.  Possible options to repair the wall are: <ol style="list-style-type: none"> <li>(i) Cracks and gaps along the edges or on the top of the wall may be modified to attain the design support conditions. Provide steel angle members so that proper boundary conditions with the concrete or structural steel members are provided.</li> <li>(ii) Cracks within the wall panel in a mortar joint may be repaired by the process of tuck-pointing using fresh mortar.</li> <li>(iii) A continuous vertical crack in the wall extending from top to bottom may be repaired by filling up the cells with grout.</li> </ol>	<u>15.D.1.1</u> Verify that the analysis is done and that permanent repairs/reworks are specified.

SPECIFIC ISSUE 16. FEEDWATER NOZZLES

A. ISSUE DESCRIPTION

Since 1981 the feedwater nozzle examinations have not covered the full volume required by NUREG 0619. Additionally, calculations to resolve findings on the SE nozzle were based on erroneous wall thicknesses.

B. REFER TO TABLE 16 FOR CORRELATION OF ISSUE SUB-ELEMENTS, ROOT CAUSES, CORRECTIVE ACTION, AND VERIFICATION ACTION.

Corrective actions and verification actions identified in Table 16 will be completed by restart.

C. LONG-TERM STRATEGY

The nozzles will be inspected and the results accepted or findings resolved prior to restart. The generic problem of incomplete examination is addressed as part of the Inservice Inspection Program under Specific Issue 4.

D. REFERENCES

1. NUREG 0619

TABLE 16

SPECIFIC ISSUE 16. FEEDWATER NOZZLES

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
<p><u>16.1</u> Full nozzle volume was not inspected per NUREG 0619 because of misinterpretation of NUREG requirements. (Root Cause 16.A)</p>	<p><u>16.A</u> Lack of attention to detail when NOE contractor was changed.</p>	<p><u>16.A.1</u> Revise procedures and re-examine the nozzle to ensure full volume inspection.</p>	<p><u>16.A.1.1</u> Verify that the examination is complete and covers the full volume required by the NUREG.</p>
<p><u>16.2</u> MPR calculations to disposition the 1981 findings assumed wall thickness of 4.5". The actual thickness in the grindout location is significantly less. (Root Cause 16.B)</p>	<p><u>16.B</u> Standards, policies and administrative controls were less than adequate in that calculations were not appropriately reviewed and accepted.</p>	<p><u>16.B.1</u> Revise calculation. Have calculation controlled as an Engineering Document.</p> <p><u>16.B.2</u> Revise Program Plan to require full volume nozzle inspection per NUREG 0619.</p>	<p><u>16.B.1.1</u> Verify that MPR calculation is in Engineering file.</p> <p><u>16.B.2.1</u> Verify that Program Plan is appropriately revised.</p>

## SPECIFIC ISSUE 17. INSERVICE TESTING

### A. ISSUE DESCRIPTION

Niagara Mohawk began implementing the Inservice Testing (IST) Program in December of 1979. The Program was revised twice to address NRC comments; however, an NRC Safety Evaluation Report was never issued. In December 1985, the Unit 1 Q-List was substantially revised and reissued. However, the IST Program was not revised to incorporate modifications and the changes to the Q list. Therefore, certain safety-related components have not been included in the Program.

### B. REFER TO TABLE 17 FOR CORRELATION OF ISSUE SUB-ELEMENTS, ROOT CAUSES, CORRECTIVE ACTION, AND VERIFICATION ACTION

Corrective actions and verification actions identified in Table 17 will be completed by restart.

### C. LONG-TERM STRATEGY

The new ISI organization will be responsible for reviewing changes to the Q-List for impact on the IST Program. Administrative controls will be established to identify and account for potential impacts on IST components. Procedure revisions will be made prior to startup.

### D. REFERENCES

1. ASME Section XI
2. IE Notice 88-70
3. 1st 10 Year Program Plan
4. 2nd 10 Year Program Plan

TABLE 17

SPECIFIC ISSUE 17. INSERVICE TESTING

<u>SUB-ELEMENT</u>	<u>ROOT CAUSE</u>	<u>CORRECTIVE ACTION</u>	<u>VERIFICATION ACTION</u>
<u>17.1</u> The IST Program does not include all ASME Class 1, 2 and 3 safety-related pumps and valves. (Root Causes 17.A, 17.B and 17.C)	<u>17.A</u> The IST Program was not adequately reviewed by NHPC. It was not maintained as a controlled document.	<u>17.A.1</u> Finalize and implement the 2nd Interval IST Program.	<u>17.A.1.1</u> Verify submittal and implementation.
<u>17.2</u> Administrative controls for the IST Program do not ensure that changes to system boundaries are reviewed for impact on IST. (Root Causes 17.A, 17.B and 17.C)	<u>17.B</u> There were no interfacing procedures to ensure that changes to the plant were reviewed for impact on the IST Program.	<u>17.B.1</u> Revise ISI organization and implementing procedures to provide adequate review of plan and design changes.	<u>17.B.1.1</u> Verify submittal and implementation.
	<u>17.C</u> Misinterpretation of 10CFR50.55A(G) and Technical Specifications. The IST Program was assumed to be fixed for the 10 year interval.	<u>17.B.2</u> Establish a method to integrate design and licensing changes into the IST Program.	<u>17.B.2.1</u> Verify that procedures have been revised to integrate design and licensing changes into the IST Program.
		<u>17.C.1</u> Obtain interim relief from the Nuclear Regulatory Commission for components that cannot be tested during the current outage.  (See also Corrective Action 17.A.1.)	<u>17.C.1.1</u> Verify content of relief request and receipt of NRC acceptance.

SPECIFIC ISSUE 18. 125 VDC SYSTEM CONCERNS

A. ISSUE DESCRIPTION

During evaluation of the 125 VDC system several concerns were identified regarding ability to demonstrate operability and functional capability. These concerns generally relate to an inability to immediately identify design basis requirements and assumptions. Evaluations and modifications are being performed as appropriate.

B. REFER TO TABLE 18 FOR CORRELATION OF ISSUE SUB-ELEMENTS, ROOT CAUSES, CORRECTIVE ACTIONS, AND VERIFICATION ACTION.

Corrective actions and verification actions identified in Table 18 will be completed by restart.

C. LONG-TERM STRATEGY

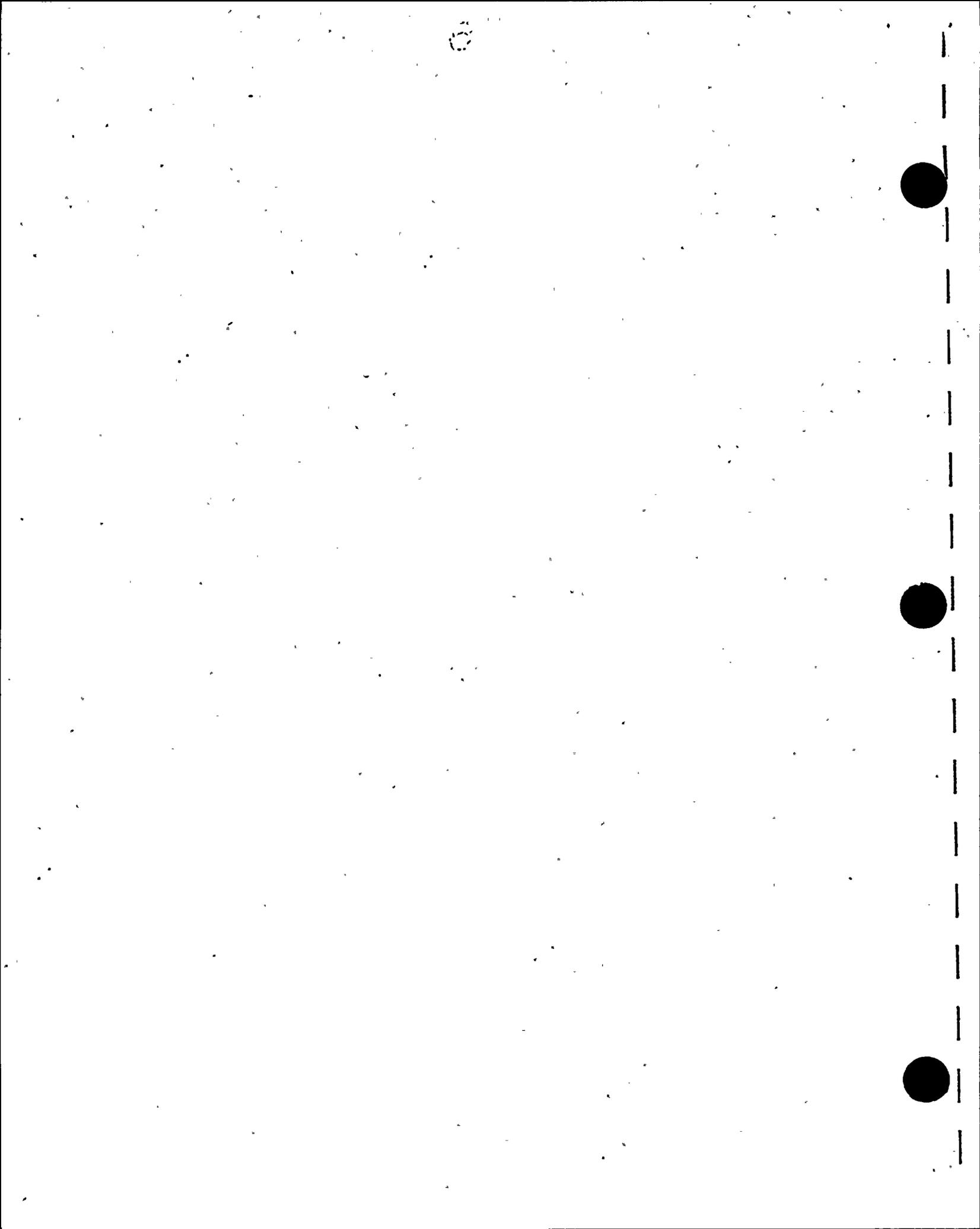
Several enhancements to the 125 VDC system have been identified as a result of the aforementioned evaluation. These are under review to establish appropriate priority and resource assignments. These reviews are expected to be completed within a year after restart. The 125 VDC system will be appropriately factored into the Design Basis Upgrade Program described under Specific Issue 14. (See Long-Term Strategy on Page II-57).

D. REFERENCES

None

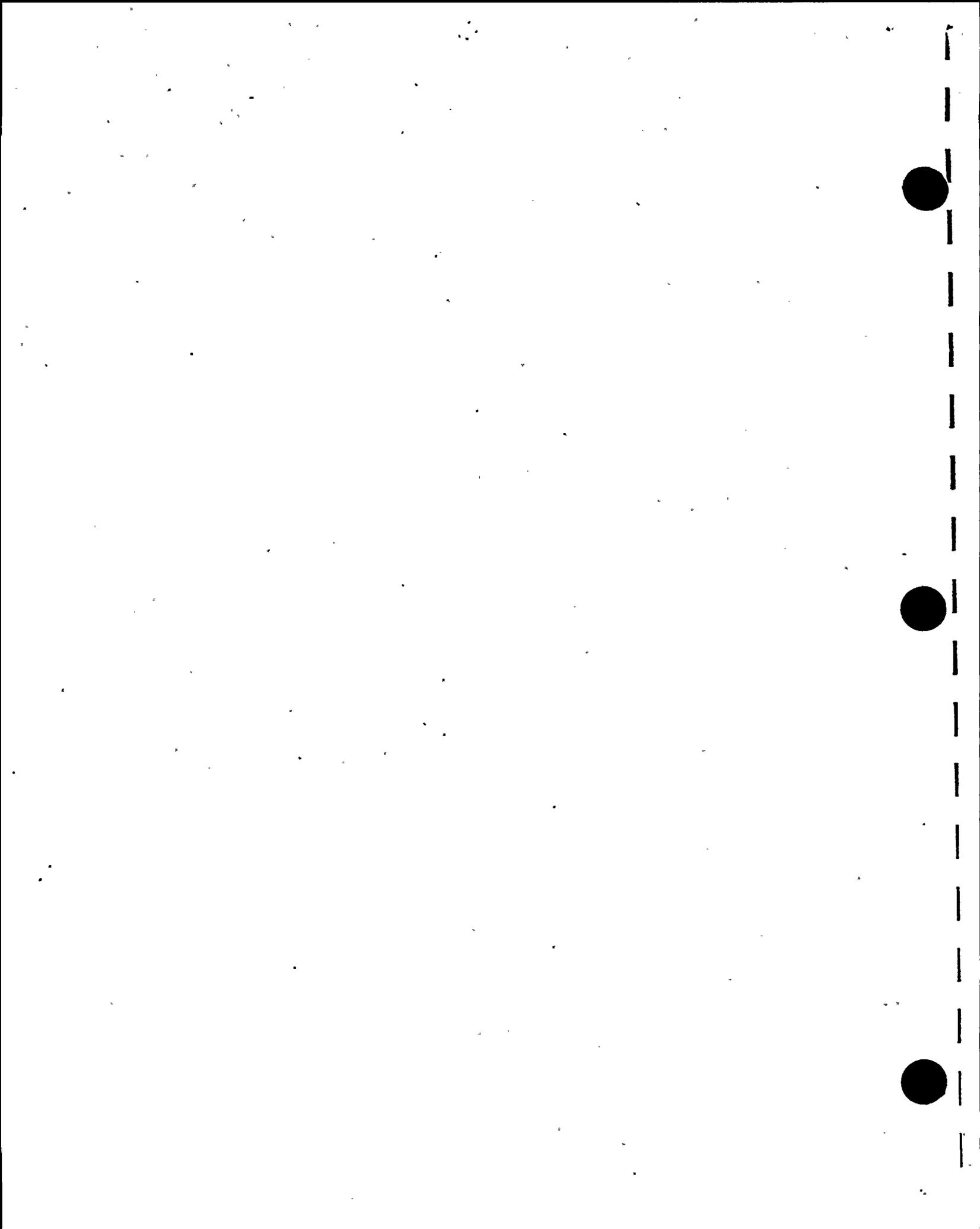
TABLE 18  
SPECIFIC ISSUE 18. 125VDC SYSTEM CONCERNS

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
<u>18.1</u> Concerns have been identified regarding the ability of the 125 VDC system to meet design and functional requirements. (Root Cause 18.A)	<u>18.A</u> Standards, policies, and administrative controls were less than adequate with regard to maintaining design basis information and configuration control.	<u>18.A.1</u> Evaluate the 125 VDC system capacity to meet design and functional requirements.  <u>18.A.2</u> Identify deficiencies and modify plant and procedures appropriately.  <u>18.A.3</u> Train appropriate personnel on 125 VDC system capability.	<u>18.A.1.1</u> Verify the evaluation is done.  <u>18.A.2.1</u> Verify deficiencies are acceptably resolved.  <u>18.A.3.1</u> Verify training is performed.



APPENDIX A

RESTART TASK FORCE CHARTER



FROM C.V. Mangan

DISTRICT Nine Mile Point

TO Distribution

DATE July 27, 1988

FILE CODE

SUBJECT Nine Mile One Restart Task  
Force - Charter

The following summarizes information related to the subject task force's overall charter.

Purpose: To provide for the overall development, coordination and implementation of Nine Mile One Restart effort in direct response to USNRC's Confirmatory Action Letter 88-17 dated July 24, 1988.

Objectives:

- Facilitate line management buy-in and involvement where line management defines root causes, action plans, and carries out implementation.
- Effectively respond to CAL 88-17 by taking aggressive yet deliberate action that fully satisfies ourselves we have adequately addressed the issues, taken required action, documented results, verified the adequacy of completion of restart action items and can withstand an independent review.

Team Members:

The initial list of Restart Task Force members is attached. It will be modified as needed. The task force leader reports to the Sr. V.P. Nuclear. Outside consultants will be added to the team to help provide specific assistance as requested.

Scope:

- Determine and document assessment of root causes per CAL 88-17 condition 1.
- Provide direction for development of restart action plan & obtain initial input for it from line organizations.
- In direct response to CAL 88-17 Condition 2, prepare a comprehensive integrated restart action plan using line management input.
- Have restart action plan draft reviewed by line management and others including outside consultants to satisfy ourselves it is complete, responsive, and realistic prior to finalizing it.
- Finalize and obtain Sr. Management approval of restart action plan. Prepare presentation material for management verbal executive summary presentation to NRC and other groups such as NM Board of Directors.
- Follow up, track, report and help identify and resolve any difficulties associated with implementation of restart action plan tasks.

- Provide direction for development of written report relative to readiness of NMP1 for restart.
- Prepare written report on readiness for restart per CAL 88-17 condition 3.
- Plan and have self-assessment performed as restart actions are implemented and use assistance from outside such as INPO to provide independent evaluation of our readiness.
- Firm up readiness written report, obtain management approval for issuance to Region I administrator.
- Prepare material for Management to verbally present executive summary report of restart readiness to NRC and NM Board of Directors.
- Provide routine status reports and communications regarding status, progress update of overall restart efforts.
- Work directly with NRC resident inspectors and NRC teams regarding restart activities.
- Obtain input from others regarding lessons learned from other troubled plants as well as utilities with excellent current performance. Factor this input into our restart action plan and readiness for restart effort.
- Perform other tasks as directed by Sr. V.P. Nuclear.

  
C.V. Mangan

CVM/amh

Distribution:

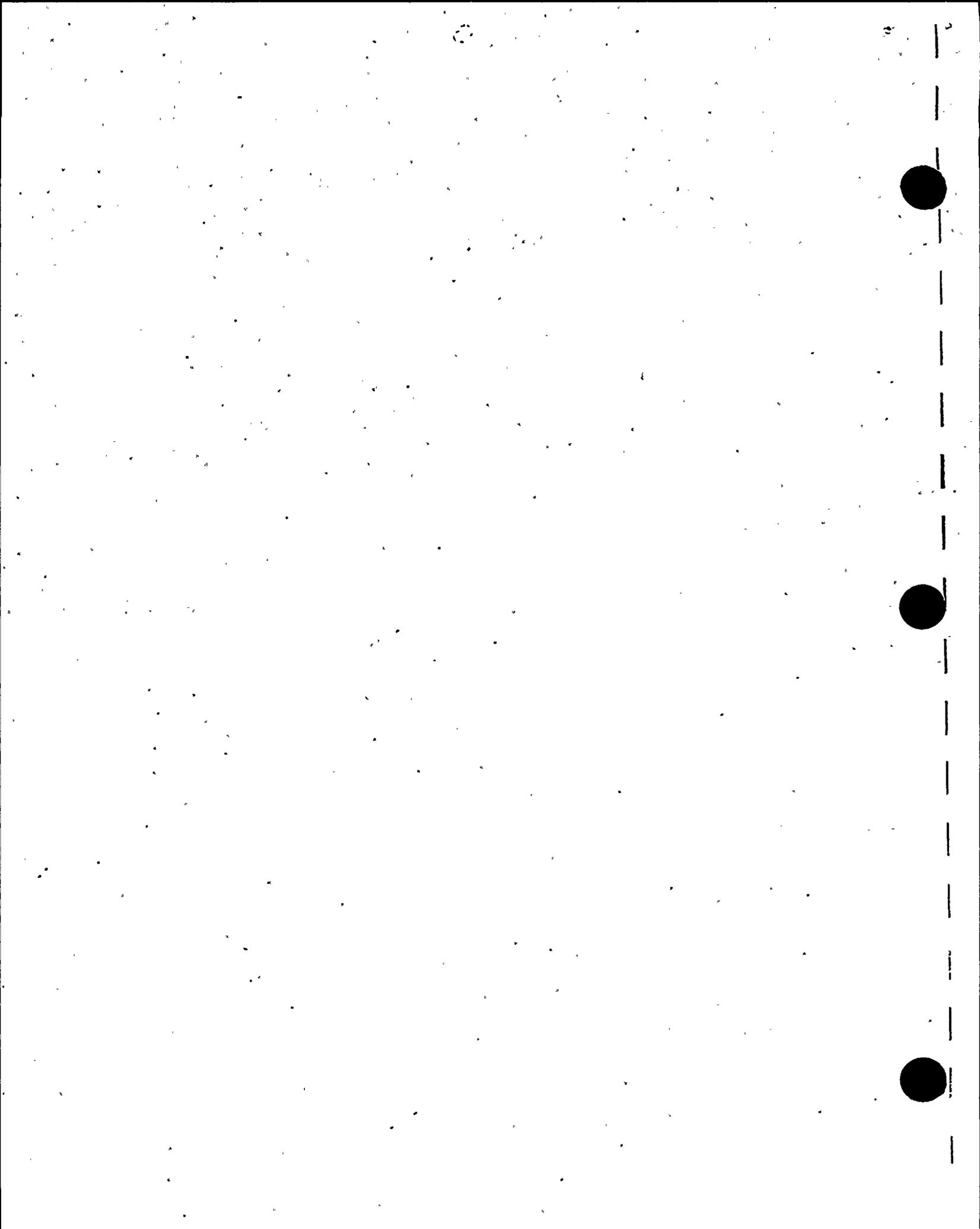
W.J. Donlon	D.R. Palmer
J.M. Endries	C.G. Beckham
J.P. Hennessey	W.A. Hansen
M.P. Ranalli	A.S. Kovac
A.J. Baratta	J.A. Perry
J.W. Powers	B.D. Wolken
G.J. Lavine	N.L. Rademacher
R.E.A. Duffy	R.B. Burtch
T.J. Perkins	G.D. Wilson
C.D. Terry	C.L. Stuart
A.F. Zallnick	K.A. Dahlberg
J.P. Beratta	E.V. Kelliher
M.F. Amati	J. Kroehler, Jr.
J.L. Willis	W.C. Drews

NINE MILE POINT UNIT 1 RESTART TASK FORCE MEMBERSHIPNIAGARA MOHAWK EMPLOYEES

<u>Name</u>		<u>Participation</u>
J. A. Perry	Director of Restart Program	Full Time
B. D. Wolken	Representing C. Terry and NE&L	Full Time
W. C. Drews	Representing J. Willis and Nucl. Gen.	Full Time
C. L. Stuart	Representing Nuclear Division Projects	Part Time
N. L. Rademacher	Director of Compliance - NRC Interface	Part Time
R. B. Burtch	Director Nuclear Info. - Communications	Part Time
G. D. Wilson	System Law	Part Time
K. A. Dahlberg	Station Supt. NMPI - Ops. Communications	Part Time
J. Kroehler	Representing Q.A. Department	Part Time
A. Zallnick	Assistant to the Senior Vice President	Part Time
M. A. Peifer	Manager of Nuclear Services (on loan from INPO)	Part Time

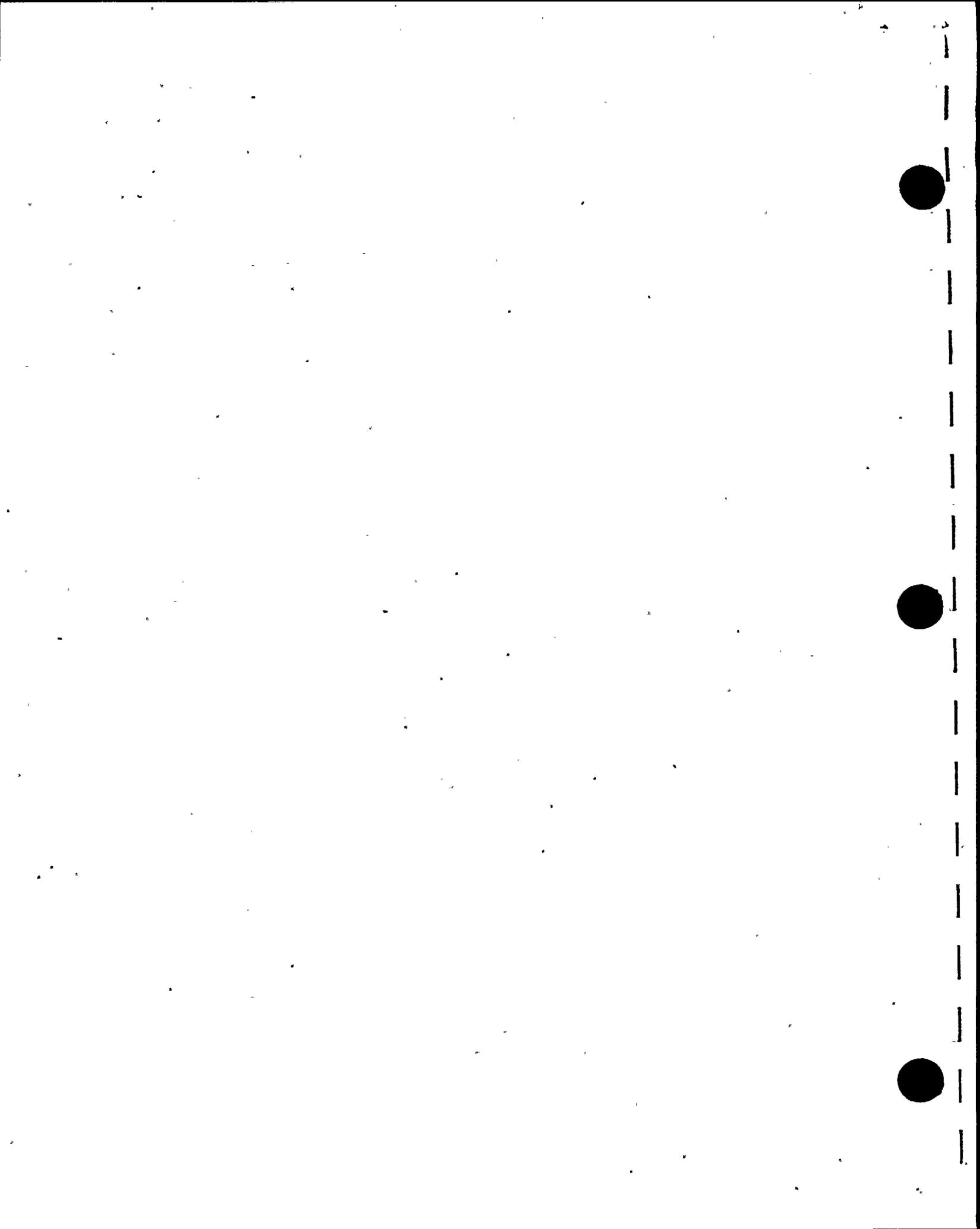
OUTSIDE CONSULTANTS

L. Kammerzell (IMS)	Part Time
D. Boyd (ASTA)	Part Time
A. J. Tudury (MAC)	Part Time
R. H. Vollmer (TENERA)	Part Time
J. R. Ubaudi (EMA)	Part Time
A. Freedman (MAC)	Part Time



APPENDIX B

PROCESS FOR ASSESSMENT  
OF UNDERLYING ROOT CAUSES



## Process for Assessment of Underlying Root Causes

This Appendix describes the process developed and used to assess systematically the issues identified by Niagara Mohawk and the NRC for common causes of programmatic deficiencies and to develop an effective set of corrective actions to address these causes and deficiencies. The assessment process is also outlined in Table 1.

Three sources of information were identified and assessed for issues and trends. These sources were: a) historical documents, issues, and trends including various performance assessment reports; b) the results of a Nuclear Generation brainstorming session relating to concerns addressed in Mr. V. Stello's letter to Mr. J. Endries, dated July 8, 1988; and c) a Restart Task Force matrix which addressed issues and their overall common observations/ contributory factors or elements. Included in these issues were the long-term improvement programs committed to in response to the I&C Technician allegations.

The issues and trends were reviewed for duplication and consolidated as appropriate according to their apparent cause. They were then sorted into the root cause categories contained in a Root Cause Coding Tree. This Root Cause Coding Tree was derived from DuPont's Savannah River Lab Users Guide.

Sorting the issues and trends by root cause categories resulted in the majority, approximately 75%, falling into two categories: Management System and Immediate Supervision. This prompted Niagara Mohawk to modify the root cause coding tree to improve applicability to broader management and organizational issues. The resultant Niagara Mohawk Root Cause Coding Tree is shown in Figure 1. Using the Niagara Mohawk Root Cause Coding Tree, the issues and trends were sorted and underlying issues were developed. The underlying issues were reviewed to determine if they were regulatory concerns using criteria in Appendix C of this Plan.

Each underlying issue was assessed to identify its root cause and corresponding corrective and verification actions. Each corrective action was evaluated to determine if it was required to be completed before restart. Priority 1 was assigned to those actions that were considered prerequisite to restart and safe plant operation. Other corrective actions were assigned Priority 2, near-term completions after restart or Priority 3, longer-term completion after restart.

The root causes were then assessed for commonality of all the underlying issues. This assessment resulted in determining the specific branches of the causal tree reflecting the bulk of the root causes. These specific branches, so identified, formed the basis for specifying the resultant five underlying root causes of all the issues.

Corrective action objectives were developed under each underlying root cause. Once these objectives were firmed up, each corrective action was reviewed to determine which appropriate corrective action objective to group it under. Under each corrective action objective, those corrective actions designated priority 2 or 3 were reviewed and summarized as long-term strategies for inclusion in this Plan. The post-restart corrective actions are contained in the Nuclear Improvement Program, which will be available for NRC review.

Table 1

Underlying Root Cause Assessment Process

1. Identify sources of information to review.
2. Review documents for issues, trends, common root causes.
3. Sort by Causal Tree Category, combine items.
4. Develop issues, sort by regulatory vs. non-regulatory.
5. Identify root causes of issues.
6. Develop corrective actions based on root causes for issues and determine priority of each as required before restart vs. post-restart.
7. Assess commonality of root causes of all issues.
8. Determine specific branches of causal tree reflecting bulk of root cause; use this as basis for specifying underlying root causes.
9. Develop Corrective Action Objectives under each underlying root cause.
10. Review each corrective action and its related root cause to determine which appropriate Corrective Action Objective to group each corrective action under.
11. Develop long-term strategies based on post-restart corrective actions.

FIGURE 1  
 NIAGARA MOHAWK ROOT CAUSE CODING TREE

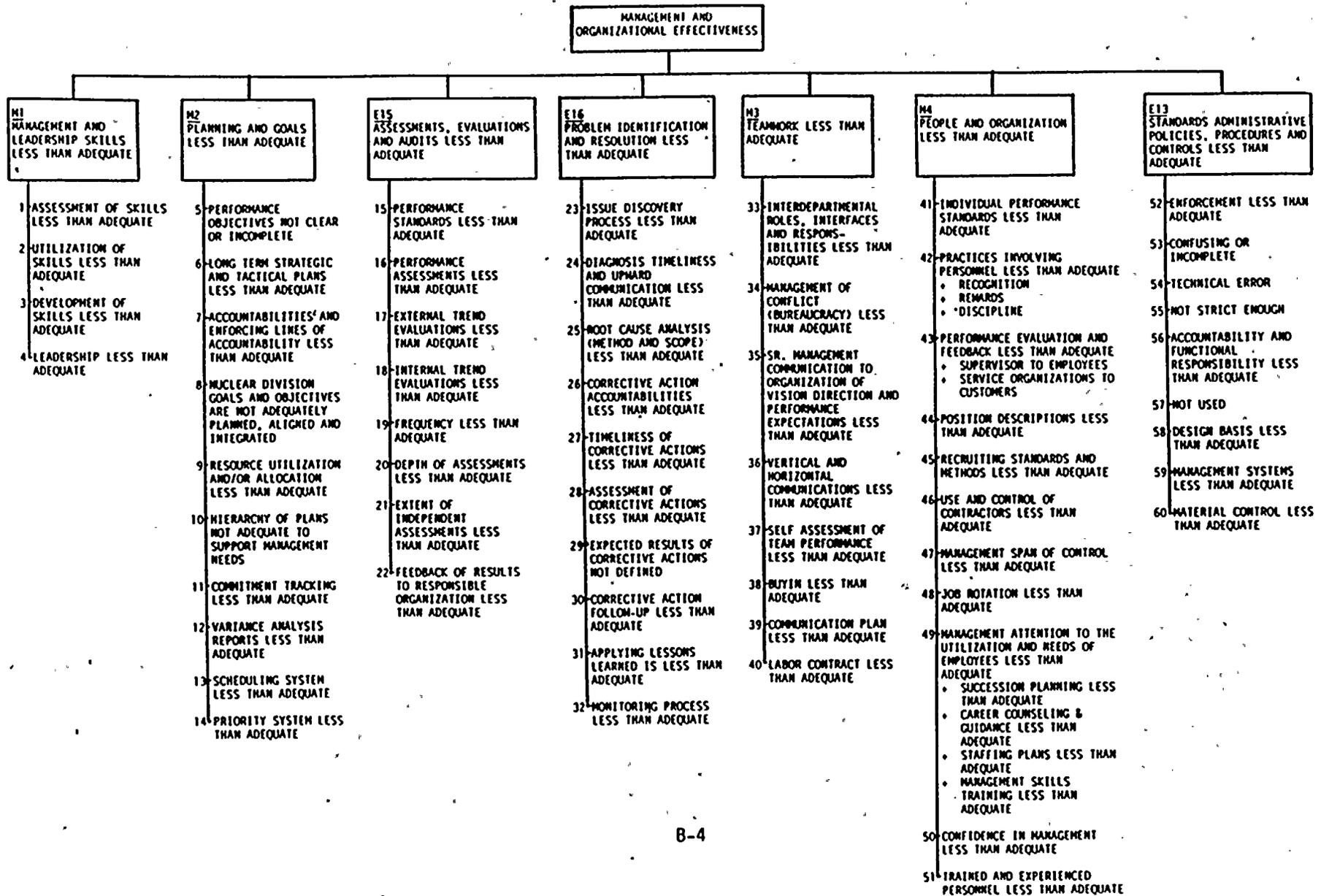


FIGURE 1 (Continued)  
 NIAGARA MOHAWK ROOT CAUSE CODING TREE

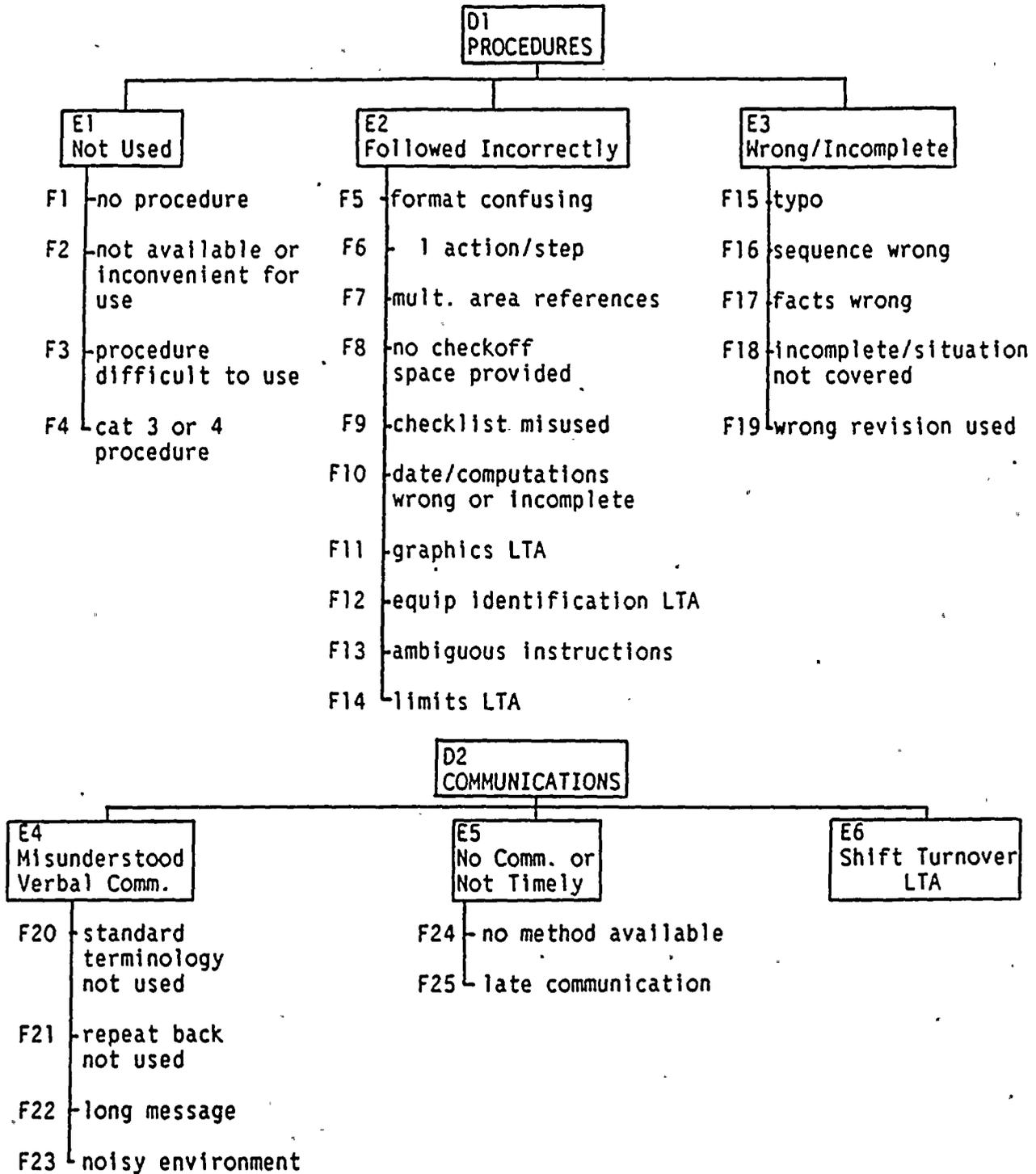


FIGURE 1 (Continued)  
 NIAGARA MOHAWK ROOT CAUSE CODING TREE

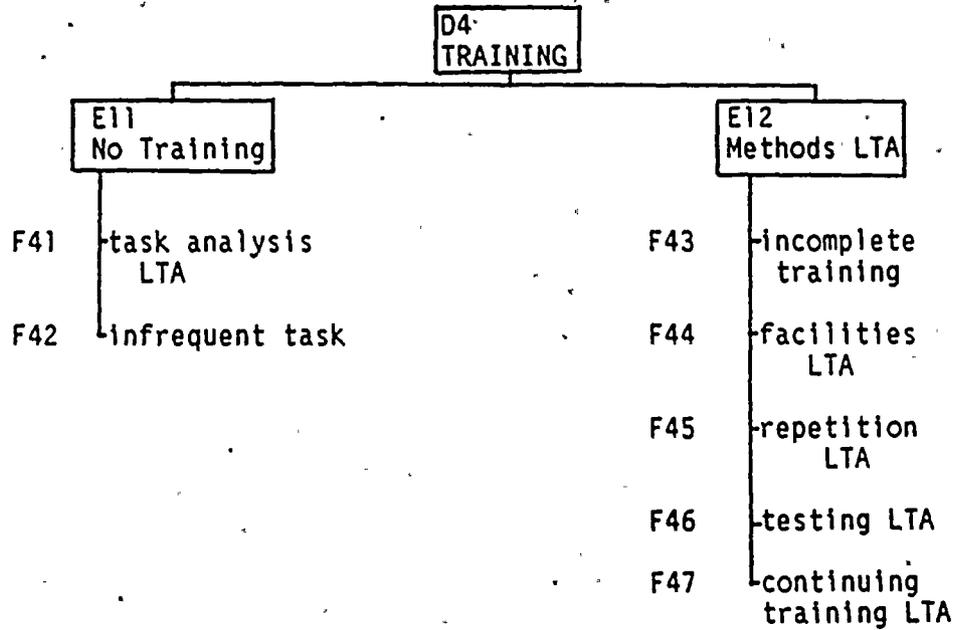
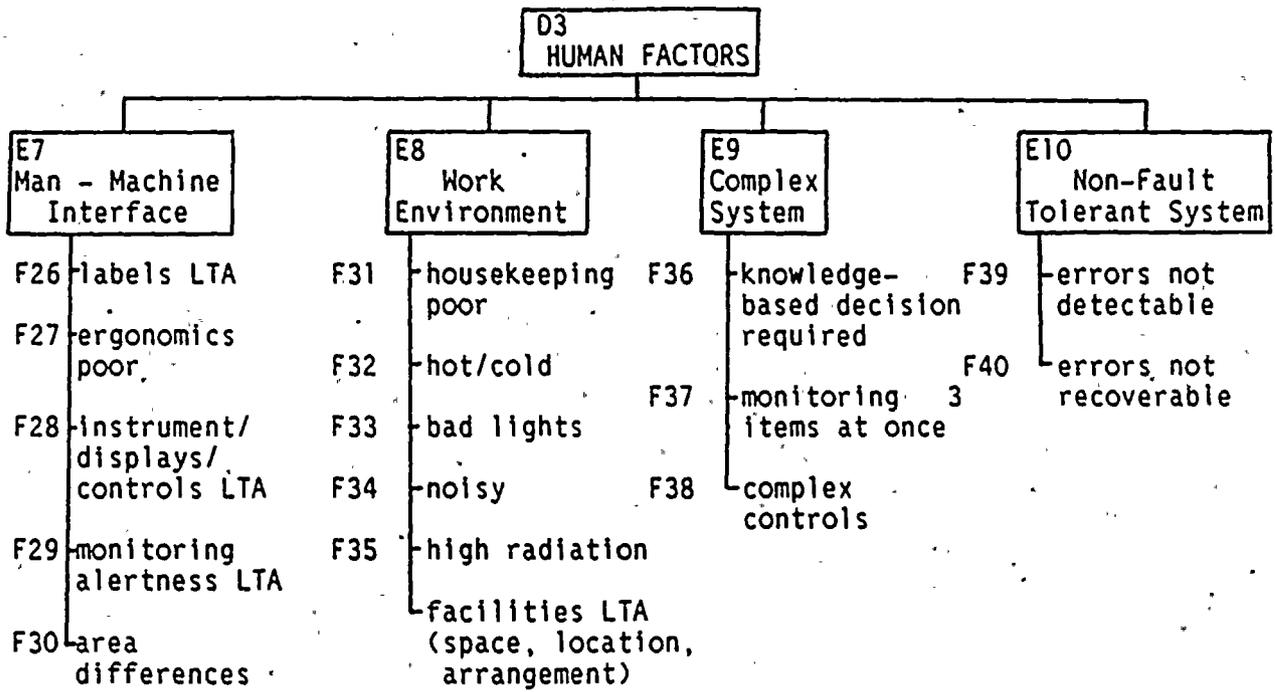
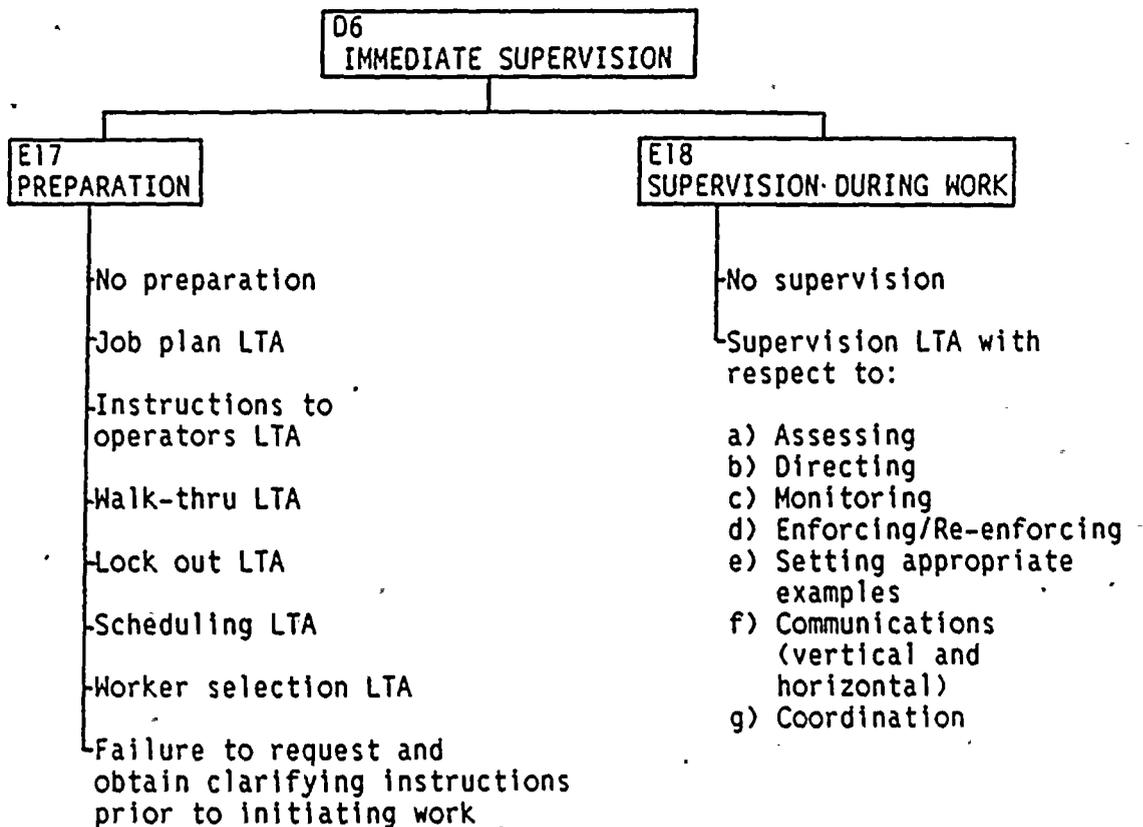
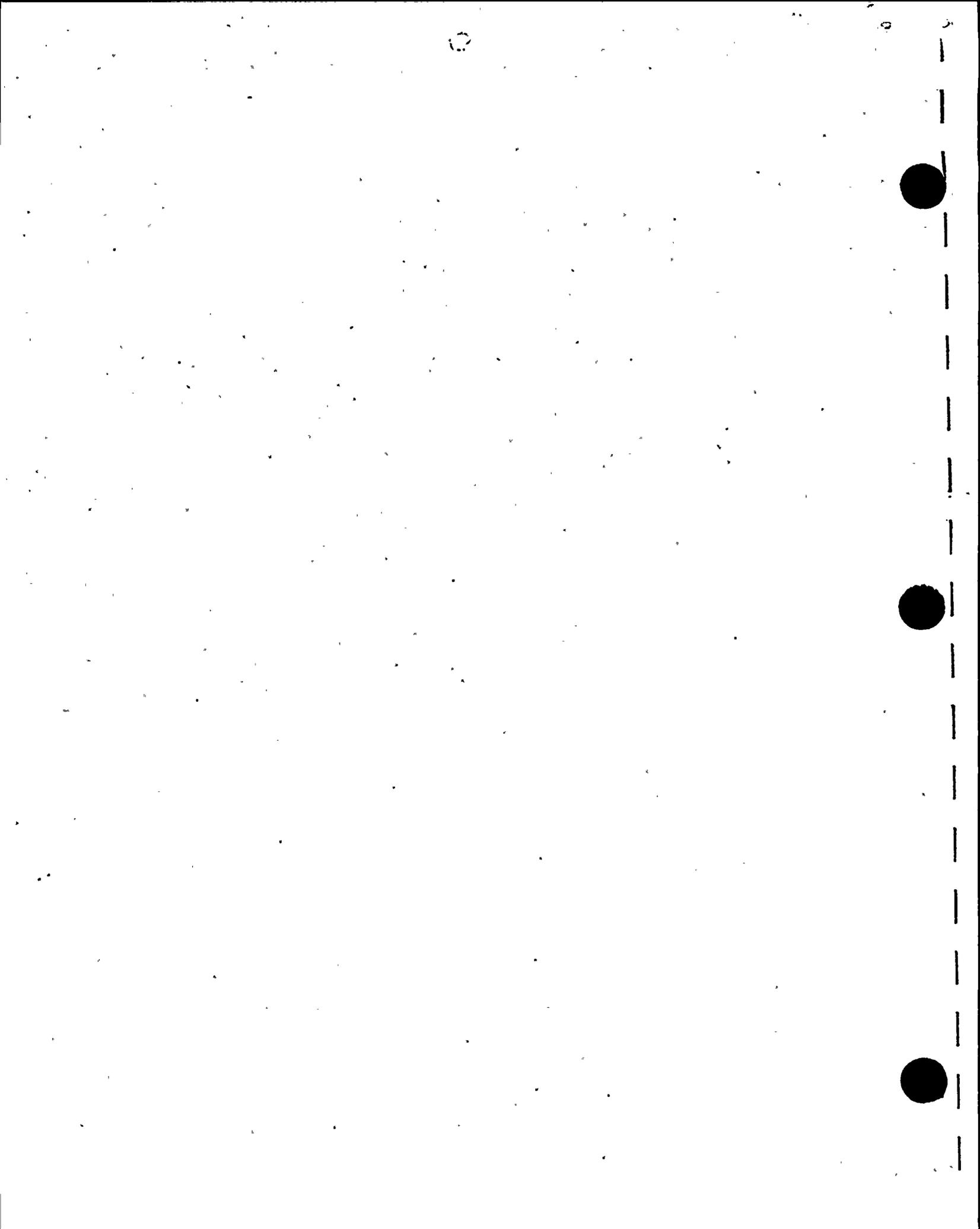


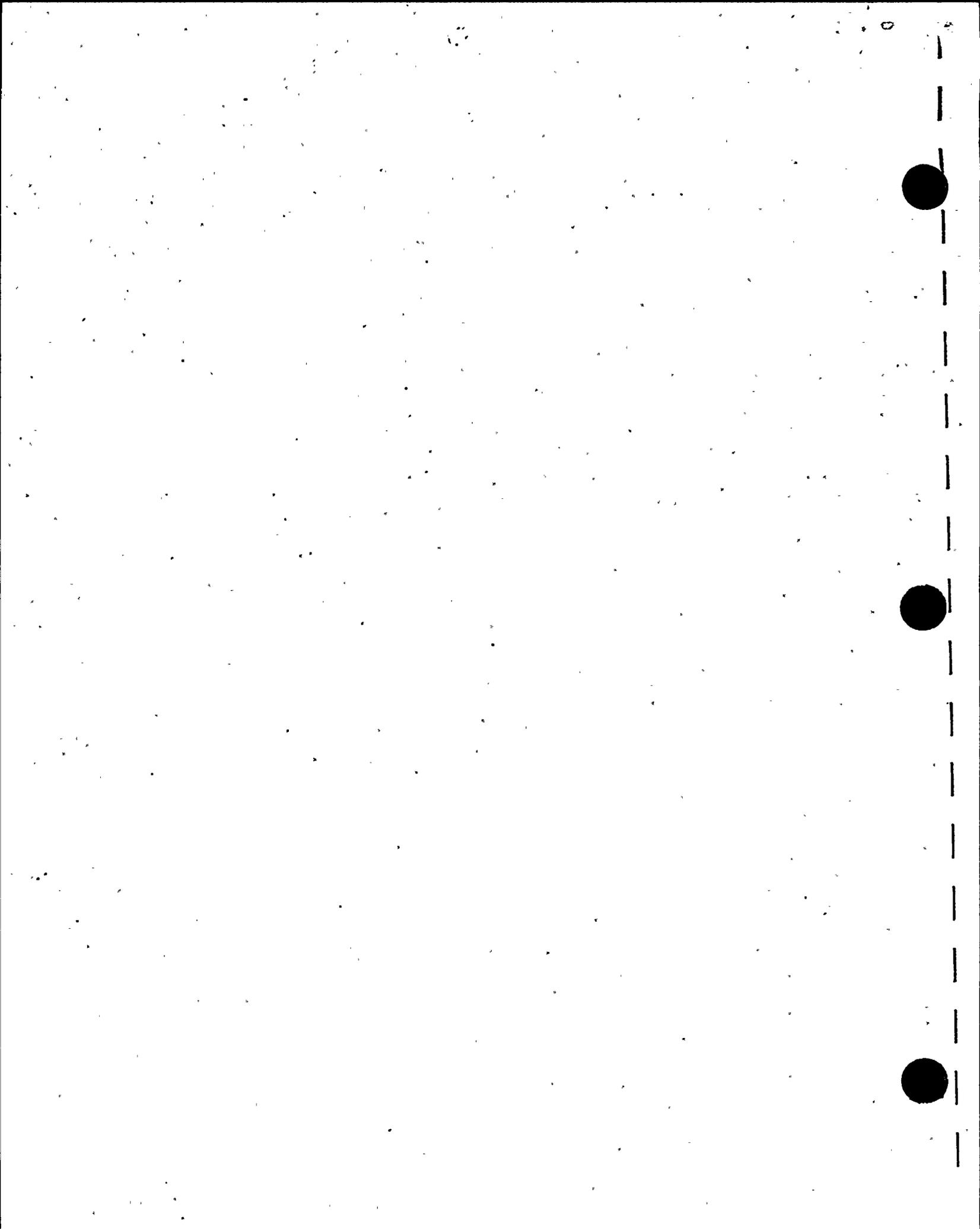
FIGURE 1 (Continued)  
NIAGARA MOHAWK ROOT CAUSE CODING TREE





APPENDIX C

CRITERIA TO DETERMINE IF AN ISSUE IS A REGULATORY CONCERN



Criteria to Determine if an Issue is a Regulatory Concern

(If one or more apply, the issue goes into the RAP)

		<u>Significant Impact</u>	
		Yes	No
1.	Does this concern/issue affect compliance with technical specifications, the operating license, or the FSAR?	Yes	No
2.	Does this concern affect compliance with the Environmental Protection Plan or Environmental Report?	Yes	No
3.	Does this concern affect compliance with regulations, rules, orders or NRC commitments made as prerequisites to restart?	Yes	No
4.	Does this concern address an immediate safety issue relating to:	Yes	No
	a. ALARA, 10 CFR 50, Appendix I		
	b. Equipment qualification		
	c. Appendix R - Safe shutdown analysis		
	d. Control room human factors		
	e. TMI action plans		
	f. Fire hazard analysis		
	g. Heavy loads		
	h. Security plan		
	i. Part 21		
	j. Licensed operator training		
	k. Emergency plan		
	l. Procedures required by Regulatory Guide 1.33		
5.	Does this concern reduce the margin of safety as defined in the basis of any technical specification?	Yes	No
6.	Does this concern increase the probability of occurrence of an accident or malfunction of equipment important-to-safety previously evaluated in the safety analysis report?	Yes	No
7.	Does this concern relate to concerns that have been repeatedly identified and not completely corrected and relate to items 1 to 6 above?	Yes	No
8.	Does this issue or item relate to repeated management or supervisor deficiencies and effective corrective actions that were not taken and relate to items 1 to 6 above?	Yes	No
9.	Does this issue relate to satisfying Confirmatory Action Letter 88-13 or 88-17?	Yes	No

