NIAGARA MOHAWK POWER CORPORATION

NINE MILE POINT UNIT 1

RESTART ACTION PLAN

REVISION 1

MARCH 1989

Approved: _____
Executive Vice President - Nuclear Operations

Concurrence: _____ 3/1/89.
Vice President - Nuclear Engineering & Licensing

Concurrence: _____ 3/2/89
General Superintendent - Nuclear Generation

Concurrence: _____ 3/1/89
Vice President - Quality Assurance

Concurrence: _____ 3/1/89
Vice President - Purchasing and Materials Management

Changes made to this plan per Revision 1 involve:

1. Changes and clarifications in response to USNRC questions and concerns received per letter Mr. W. F. Kane to Mr. L. Burkhardt III dated 2/3/89.

2. Changes and clarifications based on discussions with USNRC Restart Panel members during their review of the Restart Action Plan the week of 1/23/89.

3. Other changes and clarifications made by Niagara Mohawk to update the Restart Action Plan.

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2. Pages that do not show a revision number are revision zero.

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 and support organizations of Niagara Mohawk. It has used input from throughout the various organizations 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 and support organizations 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 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 Re .art Task Force was established to consult with line management on the deveiopment of the Restart Action Plan and to facilitate its development and initial implementation. The Restart Task Force reports directly to the Executive Vice President - Nuclear Operations. In addition, an Integrated Team of selected management personnel representing key organizational functions in the Nuclear Division and its support groups was established to provide input to the restart effort and to resolve issues encountered in the development, implementation and self-assessment of restart actions. 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.

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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. Shortcomings in past initiatives resulted from deficiencies in management and organizational effectiveness as evidenced by the absence 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 activities; too narrow a focus in identifying root causes and corrective actions; and too short an evaluation time. These shortcomings will not appear in implementing this Plan because of the following actions which were taken in the present process to address the management and organizational effectiveness:

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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, which characterize the direction and performance level to be achieved.

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
Q5 Q6 required to be implemented prior to restart (Priority 1), or as near-term (Priority 2) or longer term (Priority 3) 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. The process used to assess the impact of corrective actions on safe plant operation, and to prioritize corrective
Q5 Q6 actions, consisted of a review of each corrective action by several levels of the organization representing a cross section of the Nuclear Division and its support groups. The prioritization of corrective actions, and the methods used to determine potential impact on safe plant operation are described in Appendix C.

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The Plan also contains summaries of the long-term strategies for continued actions beyond restart (Priority 2 and 3 corrective actions). These actions, contained in the Nuclear Improvement Program, will establish levels of performance beyond that necessary to support safe operation, and are, therefore, not required before restart. Priority 2 items are intended to be completed within approximately one year following restart. Priority 3 items are intended to be completed within a five-year time frame after restart.

Niagara Mohawk recognizes that fully addressing underlying root causes is necessarily a long-term effort involving, among other things, cultural change.

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The effort to change the culture of the Nuclear Division has already begun. Specifically, the identification of the five Underlying Root Causes, the development of corrective actions and their respective Corrective Action Objectives, and the implementation of priority 1 corrective actions ensure that the present culture is already in the process of being changed.

The specific issues addressed in the Plan 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 additional issues is an ongoing process.

Each identified issue 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 the 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.

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Following completion of corrective actions, the responsible manager signifies review and concurrence of the satisfactory completion of the corrective actions on an Issues and Corrective Action Closure Form. 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, 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.
- 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 contains an Executive Summary, an Introduction that includes a glossary of terms and a body which 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, the Integrated [illegible] Charter, Process for Assessment of Root Causes, and Process for Prioritizing Corrective Actions.

The Restart Action Plan has been updated to address NRC questions and concerns. Updates (page changes) will be provided to the NRC as a controlled document until restart authorization is granted by the NRC. The Plan will not be updated with any new specific issue unless it addresses a new underlying root cause. Updates (page changes) will be controlled by appropriate identification of revisions, review and approvals.

Glossary of Terms

Q16 Buy-in - Ownership by personnel impacted by a decision or set of actions. It is achieved by involving these people in the decision making process or action development process such that they are aware of and support the resulting set of actions.

Corrective Action - A statement characterizing the effort to be undertaken to resolve the cause or causes of deficiencies.

Corrective Action Objective - A general qualitative statement of desired level of performance to be achieved over a period of time after restart.

Q3 Q11 In Line Training - Informal training accomplished while performing a task. It may involve organizational development experts providing coaching to management, facilitating management staff meetings at which good management practices are discussed, leading sessions on specific management and leadership skills, and reinforcing good management practices demonstrated by effective role models. The concept involves learning by precept and example including implementing standards of performance.

Integrated Team - A selected group of management personnel consisting of members representing the key organizational functions associated with operating and supporting the Nuclear Power Plants.

Line Management/Organization - Managers/elements of the organization which have direct responsibility and accountability for specific functions (direct and support) associated with management and operation of the Nuclear facilities. This includes support organizations such as Purchasing and Materials Management.

Nuclear Division - Those elements of the Niagara Mohawk organization that administratively and functionally report to the Executive Vice President-Nuclear Operations.

Nuclear Improvement Program (NIP) - The organized effort including all corrective actions (both those to be completed before and those to be completed after restart) directed toward improving the performance of the Nuclear Division and support organizations.

Nuclear Oversight Committee (NOC) - A committee of Directors of the Company, which includes the Executive Vice President-Nuclear Operations, responsible for overseeing the Nuclear operations.

Q5 Q6 Priority of Corrective Action - Identification of importance relative to restart and of time frame when specific corrective actions are to be completed. For example Priority 1 corrective actions are prerequisites to startup and will be completed before restart. (See App. C for more details)

Readiness for Restart Report - That document containing the results of readiness for restart assessments, including justification for restarting Nine Mile Point Unit 1 in response to Confirmatory Action Letter (CAL) 88-17 action number 3.

Restart Action Plan (RAP) - The restart action plan is the short term part of the overall program to improve performance of the Nuclear Division and supporting organizations. It is structured to specifically address actions 1 & 2 of CAL 88-17 in addition to improving near term performance.

Restart Readiness Self Assessment - The aggregate of all the various levels of assessments including line organization assessments of self and independent assessments to determine the overall readiness for restart and safe operations including satisfactory progress toward long term improvements to increase overall effectiveness.

Restart Review Panel - A special panel chartered by and reporting to the Executive Vice President-Nuclear Operations. The panel is charged with assessing and reporting, to the Executive Vice President-Nuclear Operations, the adequacy of the performance results achieved through implementing the restart action plan to assure readiness for restart.

Restart Task Force - A group chartered to consult with line management on development of the Restart Action Plan to facilitate its development and initial implementation (See App. A for more details).

Safety Review and Audit Board (SRAB) - A board that provides independent review and audit of designated activities in areas of Nuclear Power Plant Operations, Nuclear Engineering, Chemistry & Radiochemistry, Metallurgy, Instrumentation and Control, Radiological Safety, Mechanical and Electrical Engineering, and Quality Assurance practices.

Senior Management - The Executive Vice President-Nuclear Operations and his direct reports.

Site Operations Review Committee (SORC) - The committee that functions to advise the General Superintendent - Nuclear Generation on matters related to nuclear safety. The specific responsibilities and composition of the SORC are contained in the Technical Specifications.

Standards of Performance - A set of qualitative statements which characterize the organization's values for conduct of business.

Support Organizations - Those organizations that support the management and operation of the Nuclear facilities but do not administratively report to the Executive Vice President-Nuclear Operations, such as Purchasing, Materials Management, and Employee Relations.

Underlying Root Cause - A common or programmatic cause for general observed deficiencies.

Verification Action - Measures taken to confirm that a particular corrective action has been satisfactorily implemented.

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Vision, Mission Statement, Objectives, Goals -

Vision - Clear statement of the overall long term expectation for the organization.

Mission Statement - Clear statement of reason to exist including who is served inside and outside of the organization and what is done for them.

Objectives - An intended accomplishment designed to resolve a critical issue, improve the execution of key operational responsibilities and/or fulfill major operational obligations by identifying measurable results.

Goals - A specific target to be achieved in a set time frame in support of an objective.

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 past initiatives resulted from deficiencies in management and organizational effectiveness as evidenced by the absence 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 activities; 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:

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- 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. One source was 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. The other source was a Restart Task Force matrix which was developed following a review of various documents including the Self-Assessment Report from Unit 2 that addressed issues and their overall common observations or 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.

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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. Niagara Mohawk determined that those deficiencies attributed to management and organizational effectiveness were addressed by the above five underlying root causes. For example, the fundamental topic of the adequacy of management and leadership skills is encompassed by all of the Underlying Root Causes. The corrective actions associated with each Underlying Root Cause will provide in-line training which will improve management and leadership skills. Similarly, the adequacy of training personnel in the identification and resolution process is related to Underlying Root Cause 2 and the adequacy of independent assessments and quality assurance is related to Underlying Root Cause 4.

Q3

Q14 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 for the Nuclear Improvement Program. Notwithstanding these long-term efforts, a change in the culture of the Nuclear Division has already begun. Specifically, the identification of the five underlying root causes and the development of their respective Corrective Action Objectives, and the implementation of the corresponding corrective actions ensure that the present culture is already in the process of being changed.

Q5 Q6 In order to prioritize the corrective actions developed to address the underlying root causes, each corrective action item was evaluated by the Integrated Team of selected Nuclear Division managers and Restart Task Force representatives relative to its potential for impact on safe plant operations. (See Appendix A for details of the Integrated Team Charter.) Those items which were 1) significant to safe operation 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. Completion of Priority 2 and 3 corrective actions will establish levels of performance beyond that to support safe operations and is, therefore, not required before restart.

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.

Q5 Q6 Appendix C provides additional details regarding the process used to categorize corrective actions.

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 documented criteria, 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 root causes were

Q2

developed using a variety of methodologies including Niagara Mohawk's Root Cause Evaluation Programs, Kepner-Tregoe (K-T) Problem Analysis, Savannah River Reactor Incident Root Cause Coding Tree and INPO Human Performance Evaluation System (HPES) depending on the type of issue under consideration. 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, verifying completion of the corrective action, and assessing the results of the action to determine that the issue is fully resolved for restart.

Q8

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. Temporary Administrative Control Procedures N1-88-6.0, N1-88-7.0, and N1-88-8.0 identify the responsible individuals or organizations for each corrective action and verification action. 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.

Q7

To assure that corrective actions are completed and verified, a two step process is used. Following the completion of corrective actions identified in this Plan, the responsible manager conducts a review. Subsequent to this review, the responsible manager signs off on an Issues and Corrective Action Closure Form signifying concurrence in the satisfactory completion of the corrective action. The second step in the assessment process is the performance of verfication actions as described in this Plan. Sign off, signifying that verification action has been completed, is documented on the Verification Action Closure Form. Once

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 Requests Items
- Completed Modification Items

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 from both within and outside the Nuclear Division, representatives from other nuclear utilities, and outside consultants. The individuals on this panel will have broad nuclear industry experience, and be independent thinkers, oriented to both details of nuclear energy generation and the future of the industry. The panel membership will include experience in the areas of nuclear operations, engineering, management, regulatory requirements, and quality assurance. 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.

Q20

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. Several restart corrective actions have been initiated which illustrate the types of actions being taken prior to restart to correct causes which affected morale and attitude. The process that has been initiated is intended to be an iterative process. As these root causes are addressed, morale and attitude will improve at all levels of the workforce.

Q13

By addressing the broader management and organizational effectiveness 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.

Q7 RESTART CORRECTIVE ACTION: For each corrective action objective, management has specified actions relating to that objective that are to be completed prior to restart. Following completion of the action, responsible line management certifies the satisfactory completion of the corrective action.

Q23 Q46 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. This listing provides a set of general actions from which specific, appropriate verification actions can be selected. In addition, the composite list provides the basis for the comprehensive self-assessment program (see Corrective Action 4.2.1).

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 assure that corrective actions have been included.
4. Review individual training records.
5. Observe work or training in progress.
6. Q24 Interview personnel to confirm that corrective actions have been completed and are understood.
7. Observe meetings to assess communications and relationships.
8. Walk through procedures to ensure they function.
9. Q25 Inspect equipment or facilities for housekeeping and material condition as appropriate.
10. Test procedures or practices in the simulator or through drills.
11. Q26 Confirm 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 U1
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

Q28 1.1 Develop and communicate senior management's vision, mission, and performance expectations to address changing needs in the Nuclear Division and changing industry standards. (NOTE: Communication will be achieved through Corrective Actions 1.1.3 and 5.1.3.)

Restart Corrective Actions	Verification Actions
Q7 1.1.1 Develop the Nuclear Division vision and the goals for 1989 to establish the basis for current planning.	2,6
Q7 1.1.2 Modify Corporate objectives, as necessary, to support attainment of 1989 Division goals.	1,2,6
Q7 1.1.3 Modify the monthly Performance Monitoring - Management Information reporting system to include senior management expectations.	1,2,6

Long-Term Strategies

Q29 Enhance the Nuclear Division planning and goals process such that the objectives, goals, and standards of performance 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
Q7	1.2.1 Develop and implement the Nuclear Commitment Tracking System (NCTS)	1,6,8
Q7	1.2.2 Review and verify that regulatory and licensing commitments are entered onto the Nuclear Commitment Tracking System (NCTS) database tracking system. Complete items required prior to startup.	1,2,6
Q32	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.	1,2,6
Q32	1.2.4 Define responsibilities for surveillance testing by the following:	1,6
	a. Develop an administrative procedure to describe overall management responsibilities for surveillance testing.	
	b. Establish that surveillance test implementing procedures include assigned responsibility.	
Q7	1.2.5 Develop controlled lists to identify specific types of equipment subject to preventive maintenance, surveillance testing or other operational requirements.	1,2,6
Q7	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.	1,6,8

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
Q7 1.3.1 Develop the comprehensive Nuclear Improvement Program and resource load it for 1989.	1,2,6

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
Q7 2.1.2	Review previous Problem Reports to determine if there are any outstanding issues.	2,6
Q7 2.1.3	Review Work Requests back to 1986 to determine if there are any trends and outstanding issues.	2,6
Q7 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.	2,6
Q7 2.1.5	Review licensing changes and analyses from conversion of license in 1974 to the present for outstanding issues.	2,6
Q7 2.1.6	Review "Tell the Superintendent" information for any issues that may relate to restart.	2,6

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
Q7 2.1.8	Interview personnel to determine the existing management processes and tools, identify process problems, and obtain recommended solutions.	2,6
Q7 2.1.9	Clarify and document the current problem reporting process used for restart and provide links to other reporting and corrective action systems.	1,6,8
Q7 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).	1,6,8

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
Q7 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.	1,2,6
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
Q13 Q42 3.2.1 Provide organizational development professionals to work with the Executive Vice President-Nuclear Operations and his direct reports to facilitate in-line training within their respective organizations.	5,7

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
Q13 Q42 3.3.1 Provide in-line training to managers to support implementation of the Nuclear Division standards of performance.	5,6

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 with emphasis on achievement of results.

Restart Corrective Actions	Verification Actions
Q44 4.1.1 Develop and communicate the initial set of Nuclear Division standards of performance.	1,6
4.1.2 Develop and disseminate a policy to more accurately define specific responsibilities pertaining to contractor oversight.	1,6

Long-Term Strategies

Develop and communicate more specific standards of performance at the department level and lower. 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 with emphasis on results achieved.

Restart Corrective Actions	Verification Actions
Q7 4.2.1 Develop and implement a comprehensive self-assessment program to determine readiness for restart.	1,2,5,6

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
Q7	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
Q7	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.	6,7
	5.1.3 Communicate the Nuclear Division vision and the goals for 1989.	1,2,6
Q7	5.1.4 Establish a Restart Task Force that carries out tasks per charter contained in Appendix A of the Restart Action Plan.	1,2,7
Q7	5.1.5 Establish an integrated team of selected Nuclear Division, support organizations, 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.	2,6,7
Q47	5.1.6 Communicate to the organization the importance of timely identification and resolution of deficiencies using specific issues 4,6, and 17 as examples of the need to resolve potential system operability issues in a more timely manner.	2

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.

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TABLE 1
SPECIFIC ISSUE 1. OUTAGE MANAGEMENT OVERSIGHT

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
		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.4.1 Verify submission of Readiness for Restart Report to NRC.
		1.A.5 Obtain NRC Region 1 Administrator authorization for restart.	1.A.5.1 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 licenses 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.

Q53

C. LONG-TERM STRATEGIES

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

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
2.1 Some personnel did not attend some of the scheduled requalification training during the prescribed training cycle. (Root Causes 2A and 2D)	2.A Operations line management did not take ownership of the licensed operator requalification program regarding: - content - quality - attendance requirements - feedback from operators.	2.A.1 Complete requalification training for Unit 1 licensed operators as required by the approved licensed operator training program (CAL 88-13 requirement).	2.A.1.1 Verify completion of required training by audit of training records.
2.2 Records of requalification training attendance were not complete for some of the licensed operators. (Root Causes 2A, 2C and 2D)		2.A.2 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.	2.A.2.1 Verify through interviews that line management has understanding of their responsibility and accountability for operator training programs.
2.3 Some license applications, Form NRC-398, Personal Qualifications Statement, were incorrectly submitted in that missed training was not listed on the form as required. (Root Causes 2C and 2D)		2.A.3 Inform operators of expectations for attendance and conduct related to training.	2.A.3.1 Verify through interviews of a random sample of operators that they understand the expectations for attendance and conduct related to training.
2.4 Training directives did not effectively implement the NRC approved licensed operator requalification program. (Root Causes 2B and 2D)			Q56 2.A.3.2 Verify through observation of each shift at one or more training sessions, as appropriate, to determine that behavior matches expectations of conduct.
		2.A.4 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.	Q57 2.A.4.1 Attend OTPAC meetings to the extent appropriate to verify that team interactions and functioning of the process are effective.
			2.A.4.2 Interview OTPAC members to evaluate contributions and perceptions.
			2.A.4.3 Review OTPAC meeting minutes for quality of activities.
			2.A.4.4. 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
	2.B The quality of training in some instances was not adequate due to inadequate management oversight, insufficient preparation by the trainers, or simulator deficiencies.	2.B.1 Direct the superintendent of training to provide management oversight to assure quality of training.	2.B.1.1 Interview the Training Superintendent - Nuclear to identify specific actions he takes to assure quality of training.
		2.B.2 Provide additional staffing for the training organization.	2.B.2.1 Verify that additional training positions have been authorized and filled.
		2.B.3 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.	2.B.3.1 Review simulator change records to verify completion. Observe simulator training, obtain OTPAC feedback, and interview operators who participate in validation and testing of hardware and software changes to determine if simulator meets training objectives.
		2.B.4 Revise training procedures to systematically identify, prioritize, and track changes to the simulator.	2.B.4.1 Verify that training procedures have been revised and are being implemented.
		2.B.5 Match training content with NRC-approved licensed operator requalification program content.	2.B.5.1 Verify the training content agrees with the NRC-approved license operator requalification program.
			2.B.5.2 Q61 Each shift will be interviewed as a shift to assess quality of training. This will involve 100% of the licensed operators.
		2.B.6 Certify trainers in the use of training methods to increase the attention and skills of operators.	2.B.6.1 Observe trainers in training sessions to determine the extent of their use of the desired training methods:

TABLE 2

SPECIFIC ISSUE 2. MAINTENANCE OF OPERATOR LICENSES

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
	2.C Management oversight was inadequate in assessing required resources and providing direction to personnel to assure appropriate attention to operator requalification records.	2.C.1 Update operator requalification records to reflect current data on attendees.	2.C.1.1 Verify that records have been updated.
		2.C.2 Establish written procedures for handling and processing operator requalification records. Perform record functions per approved procedures.	2.C.2.1 Verify that record functions are being performed per approved procedures.
		2.C.3 Assess resources to assure that record-keeping requirements of 10CFR55 and training directives can be satisfied. (See also Corrective Action 2.B.1.)	2.C.3.1 Review staffing for training record-keeping function to confirm that resources are adequate to maintain training records.
		2.C.4 Upgrade training record keeping system to provide assurance that requirements of 10CFR55 and training directives are satisfied. (Commitment in NMPC letter NMP34462 dated 4/21/88 to NRC and in NMPC letter NMPIL 0270 dated 6/17/88 to NRC.)	2.C.4.1 Verify that the record-keeping system satisfies the requirements of 10 CFR 55 and training directives.
	2.D 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.	2.D.1 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.	2.D.1.1 Verify that the appropriate instructions and procedures have been revised and satisfy the commitments to the NRC.
		2.D.2 Develop, approve, and implement procedure NTI-5.0 to cover the preparation, processing, approval, and issuance of Form NRC-398.	2.D.2.1 Verify that the procedure has been developed and is being implemented.
		2.D.3 Instruct appropriate personnel on the requirements contained in procedures mentioned in 2.D.1 and 2.D.2. (See also Corrective action 2.B.1.)	2.D.3.1 Verify that personnel have been instructed and interview personnel instructed. Q63

5720G

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.

C. LONG-TERM STRATEGY

Q53 None required. All corrective actions will be completed before restart.

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

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
3.1 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)	3.A 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.	3.A.1 Establish and implement a comprehensive EOP training program to upgrade knowledge and proficiency of operating crew personnel. Include in-plant training on EOPs in the program.	3.A.1.1 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.
3.2 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)			3.A.1.2 Review records to verify attendance and performance in EOP training.
3.3 Q70 Records were incomplete regarding instructors' qualification and certification. (Root Cause 3F)			3.A.1.3 Observe and evaluate operator performance of each crew on the simulator performing a random sample of EOPs to respond to transients.
			3.A.1.4 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.
			3.A.1.5 Interview instructors for comments on operator attitudes and performance in EOP training.
	3.B Lack of adequate policy describing the purpose, use, and implementation of flow path EOPs for Unit 1.	3.B.1 Develop and communicate a written policy on EOPs to describe their importance.	3.B.1.1 Verify policy issued and communicated to operations and training personnel.
		3.B.2 Approve and implement the flow chart EOPs (Open Item 88-22-08).	3.B.2.1 Verify that flow chart EOPs have been implemented.

TABLE 3

SPECIFIC ISSUE 3. EMERGENCY OPERATING PROCEDURES

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
	3.C 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.	3.C.1 Clearly define responsibilities of operations line management and training department management with regard to planning and conducting training.	3.C.1.1 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.
		3.C.2 Establish a policy that indicates the Operations Superintendent is responsible for management oversight of EOP training and accountable for meeting training requirements.	3.C.2.1 Interview training instructors to obtain examples showing ownership of the EOP training program by line organization.
		3.C.3 Refer to Issue 2, Corrective Action 2.A.4 concerning OTPAC.	3.C.3.1 Refer to Issue 2, Verification Action 2.A.4.1 through 2.A.4.4.
		3.C.4 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.	Q66 3.C.4.1 Interview training department supervisors and instructors for their approach to recognizing and reporting training deficiencies. 3.C.4.2 Review training deficiency notification file.
		3.C.5 Revise AP-2.0 to include QA in the review of EOP procedures (Open Item 88-22-05).	3.C.5.1 Review documentation and conduct interviews to verify completion.
	3.D Operations management did not take ownership of EOP training of operators.	3.D.1 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.	3.D.1.1 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
	3.E 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.	3.E.1 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).	3.E.1.1 Review documentation to verify completion. Walk-through a sample operating procedure referenced by the EOPs to determine if it is clear and correct.
		3.E.2 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).	3.E.2.1 Review documentation to verify completion.
		3.E.3 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).	3.E.3.1 Review documentation to verify completion. Walk-through sample EOPs to spot-check for hardware compatibility.
		3.E.4 Dedicate and administratively control plant hardware needed to perform EOP tasks (Open Item 88-22-02).	3.E.4.1 Review documentation to verify completion. Spot-check hardware needed to perform EOP tasks.
		3.E.5 Correct labeling inconsistencies identified during review of EOPs and walkdowns in the plant (Open Item 88-22-02).	3.E.5.1 Spot-check for correct labeling of hardware used in EOPs.
		3.E.6 Review EOPs for human factor concerns identified in NRC audit (Open Item 88-22-03). Classify changes. Complete changes required before restart.	3.E.6.1 Review documentation to verify completion. 3.E.6.2 Conduct interviews as appropriate.

Q68

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
4.1 Q74 The ISI program lacked adequate management oversight. (Root Causes 4A, 4B and 4D)	4.A An adequate deficiency reporting system was not clearly understood.	4.A.1 Revise QAP 14.20 and 15.01 to initiate Occurrence Report when an NCR is issued and personnel retrained. Q75	4.A.1.1 Verify NCR issued during outage according to procedure. Verify personnel have been retrained, as applicable.
4.2 QC direct involvement in ISI was inadequate. (Root Cause 4C)		4.A.2 Eliminate use of DCA procedure and replace by using NCR.	(see 4.A.1.1)
4.3 QC review of ISI documentation was not timely. (Root Cause 4D)		4.A.3 Revise AP-8.3 to explicitly identify notification requirements and define interfaces.	4.A.3.1 Verify that procedure has been revised and is being implemented.
4.4 Administrative system was inadequate to ensure notification of proper personnel. (Root Cause 4A)		4.A.4 Revise NEL-017 and -029 to simplify reporting of ORs and retrain applicable personnel.	4.A.4.1 Verify that procedure has been revised and is being implemented. Q75 Verify personnel have been retrained, as applicable.
4.5 Corporate Engineering personnel did not disposition ISI-identified deficiencies in a timely manner. (Root Cause 4D)		4.A.5 Evaluate NCR results collectively for trends and underlying concerns.	4.A.5.1 Verify that collective evaluation of NCR results was performed.
4.6 Station management did not ensure all ISI identified deficiencies were resolved prior to plant startup. (Root Causes 4A and 4C)		4.A.6 Perform a "maintenance walkdown" of large bore safety related pipe systems not included in the ISI Program.	4.A.6.1 Verify that "maintenance walkdown" of pipe systems was performed.
4.7 Site management and QC failed to ensure adequate corrective action for RBCLC heat exchanger problems. (Root Causes 4A and 4C)	4.B Management failed to adequately assess resources required to carry out commitments.	4.B.1 Establish an interim organization with an experienced Task Manager to implement the ISI program including dedicated engineering personnel.	4.B.1.1 Verify that personnel are in place and functioning as committed.
4.8 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)		4.B.2 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).	4.B.2.1 Verify that personnel are in place and functioning as committed.
4.9 Program plans did not specify all the required exams. (Root Causes 4B and 4C)			

Q83

C. LONG-TERM STRATEGIES

Quality Assurance oversight of the Fire Department surveillance tests 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 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
6.1 Fire barrier penetrations were inadequate. (Root Causes 6B, 6D, 6E and 6J) 6.2 Niagara Mohawk failed to detect the inadequacies in a timely manner. (Root Causes 6A, 6B, 6C, 6E, 6F, 6G, 6H, 6I, 6J, and 6K)	6.A Design and station personnel lacked proper understanding of what constitutes degradation of a fire barrier.	6.A.1 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.	6.A.1.1 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.
		6.A.2 Review the adequacy of the past and present penetration sealing details and revise their associated instructions.	6.A.2.1 Verify that past penetration sealing detail problem report has been dispositioned and revised penetration sealing details generated.
		6.A.3 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.	6.A.3.1 Verify that revised or new Specifications/Instructions were issued and new NCRs were generated.
		6.A.4 Revise the Breach Permit Procedure to include Nuclear Engineering and Licensing review.	6.A.4.1 Verify that the Breach Permit Procedure has been revised to include NEL review.
	6.B Present and past penetration sealing detail drawings did not provide adequate instructions.	6.B.1 Revise drawing control procedures to ensure clear instructions are provided. Train personnel regarding updating drawings related to fire penetrations (As-Built vs. Construction).	6.B.1.1 Verify that the procedures have been issued and training has been completed. Conduct interviews as appropriate.
		6.B.2 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.	6.B.2.1 Verify that the penetration design data base has been updated.

TABLE 6

SPECIFIC ISSUE 6. FIRE BARRIER PENETRATIONS

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
		6.B.3 Perform visual examination on 100% of the penetrations through a required fire barrier on a per fire barrier basis and document results.	6.B.3.1 Verify that data sheets were prepared and work package folders have been established. Perform visual field verification of Technical Specification barriers/penetrations using revised Fire Department Surveillance Procedures. Q83
		6.B.4 Perform destructive examination and rework on those penetrations which drawing research indicates may not conform with current penetration sealing detail drawings.	6.B.4.1 See 6.B.3.1 above.
		6.B.5 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.	6.B.5.1 Verify examination results were documented and that the basis for acceptance has been justified.
	6.C Penetration design data base was not maintained.	6.C.1 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	6.C.1.1 Verify that NCRs/PRs have been generated and dispositioned. Verify by visual field verification that required rework and repairs were completed via a modification work request or a work request and the NCR/PRs are closed out. Q86
	6.D Management failed to recognize the scope, impact, and implementation requirements of the commitment.	(6.D.1) 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
	6.E There was no integrated program plan and definition of responsibilities.	6.E.1 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.	6.E.1.1 Verify that a Nuclear Engineering and Licensing Procedure has been generated. Verify that Site Administrative Procedures have been revised as required.
	6.F It was incorrectly assumed the UL test program/Engineering evaluations encompassed existing penetration configurations.	(6.F.1) 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	
	6.G Drawing research was incomplete.	(6.G.1) See corrective actions 6.A.1, 6.A.2, 6.A.3, 6.B.2 and 6.B.4.	
	6.H Previous walkdown teams lacked an indoctrination with the Unit 1 design data base.	(6.H.1) See corrective actions 6.A.1 and 6.A.3.	
	6.I The Fire Department Surveillance Procedures only required inspection by penetration detail. Q83	6.I.1 Revise surveillance procedures for NRC required fire "barriers" to inspect "barriers" as well as individual penetrations. Q88	6.I.1.1 Verify that the revised surveillance procedures have been issued and have been properly used, as appropriate.
	6.J Adequate instructions were not provided by Engineering to investigate potential deviations during the 1985-1986 time frame.	(6.J.1) See corrective actions 6.A.1, 6.A.2, 6.A.3, 6.B.1, 6.B.3 and 6.B.5.	
	6.K 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).	6.K.1 Close out open items from Gage Babcock audit.	6.K.1.1 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). Niagara Mohawk's letter dated February 14, 1989 (NMPIL 0358) provided our long-term program to resolve the torus wall thinning issue.

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, & 4 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
4. Niagara Mohawk letter No. NMPIL 0358 dated February 14, 1989

TABLE 7

SPECIFIC ISSUE 7. TORUS WALL THINNING

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
7.1 NRC expressed concern that torus wall thickness may be approaching minimum allowable, per NRC measurements. (Root Cause 7A)	7.A Niagara Mohawk did not provide adequate management oversight during the NRC inspection to answer questions in a timely manner and aggressively pursue issues to eliminate confusion and misunderstanding on this issue.	7.A.1 Present information on torus wall thinning to NRC. Submit information discussed at meeting, including clarification of test frequency, in a letter to NRC.	7.A.1.1 Verify that meeting was held and that Niagara Mohawk letter was submitted to NRC containing technical justification for continued operation.
		7.A.2 Obtain NRC concurrence with the Niagara Mohawk position stated in letter from corrective action 7.A.1.	7.A.2.1 Verify NRC Region I acceptance of the Niagara Mohawk position on torus wall thinning.
		7.A.3 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.	7.A.3.1 Verify that the Regulatory Compliance group has been established and that coordination responsibilities are documented and are being carried out.
		7.A.4 Obtain wall thickness measurements during the current outage to establish a baseline for shutdown conditions.	7.A.4.1 Verify that measurements were taken.

Q90

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
8.1 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)	8.A There was inadequate follow-up to obtain formal NRC concurrence of proposed alternate methods to satisfy regulatory requirements.	8.A.1 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.	8.A.1.1 Verify that revised Nuclear Division Policy No. 3 is issued and communicated.
		8.A.2 Perform a test to validate the adequacy of the scram discharge volume.	8.A.2.1 Verify that the test was performed with satisfactory results.
		8.A.3 Obtain NRC concurrence of test.	8.A.3.1 Verify that NRC concurrence was obtained.

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 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 (NMP1L 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 (NMP1L 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 (NMP1L 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 In-service Testing torus branch line isolation valves after receipt of the procedure for ensuring a water seal of these valves.

Q91 Niagara Mohawk has subsequently determined that it may not be possible to provide a water seal for the containment spray isolation valves with the current design of the containment spray system. Therefore, an exemption request must be submitted for the containment spray isolation 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

Q91 Niagara Mohawk will be in receipt of required exemptions and will satisfy Appendix J requirements.

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
Q92 5. NRC Letter to NMPC dated November 9, 1988 regarding review of July 28, 1988 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
9.1 Leak rate testing of the emergency condenser condensate return valves and the valves in the suction and return lines for the shutdown cooling system and the containment spray discharge line isolation valve has not been performed, based on Niagara Mohawk's consideration of these systems as containment extensions. (Root Cause 9A) Q91	9.A 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 and the containment spray discharge line isolation valve. Q91	9.A.1 Submit exemption request for emergency condenser and shutdown cooling isolation valves and procedure for providing water seal to containment spray isolation valves. (Approval of exemption request required before restart.) 9.A.2 Submit exemption request for containment spray discharge line isolation valves. Q91	9.A.1.1 Verify Niagara Mohawk submittal and NRC acceptance/approval. 9.A.2.1 Verify Niagara Mohawk submittal and NRC acceptance/approval. Q91

TABLE 10

SPECIFIC ISSUE 10. REACTOR PRESSURE VESSEL PRESSURE/TEMPERATURE CURVES

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
10.1 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)	10.A 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.	10.A.1 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.	10.A.1.1 Verify that Niagara Mohawk submitted a letter to the NRC containing justification for operation with present pressure/temperature curves.
		10.A.2 Obtain NRC concurrence to the Niagara Mohawk letter dated 6/16/88 related to 10.A.1 above.	10.A.2.1 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 oversite 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 12

SPECIFIC ISSUE 12. MOTOR GENERATOR SET BATTERY CHARGERS

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
12.1 Motor generator set battery chargers were inappropriately reclassified to non-safety related. (Root Cause 12A and 12B)	12.A Insufficient and inadequate documentation was accepted for justifying the reclassification.	12.A.1 Complete Appendix B determination to reclassify motor generator set battery chargers as safety-related components. Update the Q List.	12.A.1.1 Verify completion of an Appendix B Determination that will reclassify the motor generator set battery chargers as safety-related.
		12.A.2 Issue and have involved personnel sign a Lessons Learned Transmittal detailing the concern and cautionary statements about using inadequate documentation.	12.A.2.1 Verify that involved personnel understand the concern.
		12.A.3 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.	12.A.3.1 Verify report issuance and acceptance by responsible managers.
	Q97	12.A.4 Investigate battery charger motor generator sets' components installed since 1983 and maintenance work done to determine if quality requirements of 10CFR50 Appendix B and qualification requirements were met. Document results in a report. Correct nonconforming items by dedication or by replacing them with items procured safety related, as specified in NCRs based on report findings.	Q97 12.A.4.1 Verify that the Engineering Report detailing the investigation and resolution of work done since 1983 has been issued and corrective actions are completed.
	12.B The design bases of the 125 VDC system was not adequately documented and controlled. NOTE: Refer to Specific Issue 18 for related information.	12.B.1 Prepare a Design Report providing the design bases for the battery chargers and file the report for retreivability.	12.B.1.1 Verify these documents are appropriately filed and retrievable.
		12.B.2 Use excerpts from the Design Report to update the FSAR and other configuration documents.	12.B.2.1 Verify issuance of Design Report and Licensing Document Change Notice (LDCN) for FSAR update and update of other configuration documents.

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

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.

On February 1, 1989, NRC provided Inspection Report 50-220/88-201 which added two new open items. Other open items are consistent with the NRC Quick Look Letter. These two new open items have been incorporated into 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. Other Niagara Mohawk action will be carried out in response to reference 6.

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
6. NRC Inspection Report 50-220/88-201, dated February 1, 1989.

TABLE 14

SPECIFIC ISSUE 14. SAFETY SYSTEM FUNCTIONAL INSPECTION

	SUB-ELEMENT	ROOT CAUSE		CORRECTIVE ACTION	VERIFICATION ACTION
Q101 Q104 Q106	14.1 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, Corrective Action 14.A.1)	14.A 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.		14.A.1 Submit a revised Technical Specification to reconcile the limiting condition for operation with sparger operability.	14.A.1.1 Verify the submittal.
				14.A.2 Perform calculations to verify operability of the Core and Containment Spray Systems under the stated conditions.	14.A.2.1 Verify that calculations were performed and the results accepted.
Q101 Q104 Q106	14.2 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, Corrective Action 14.A.2)			14.A.3 Perform calculations to assess potential for vortexing and associated impact.	14.A.3.1 Verify that calculations were performed and the results accepted.
Q101 Q104 Q106	14.3 Vortexing analyses did not account for the interactive affects of the two pump suctions in proximity to each other. (Root Causes 14.A, Corrective Action 14.A.3)		Q99	14.A.4 Control the pump curves and include them in the Configuration Management program. Perform a one-time test of each core spray system to validate the combined (core spray plus topping) pump curves.	14.A.4.1 Verify the curves are being controlled and are part of configuration management program. Verify acceptable test results.
Q101 Q104 Q106	14.4 System pump curves did not appear to be controlled or validated by testing over the full range of expected flows. (Root Cause 14.A, Corrective Action 14.A.4)			14.A.5 Perform calculations to account for components.	14.A.5.1 Verify the calculations are performed and the results accepted.
				14.A.6 Perform calculations to address potential impact of flow diversion.	14.A.6.1 Verify the calculations are performed and the results accepted.
Q101 Q104 Q106	14.5 System resistance curves did not account for all components in the system. (Root Cause 14.D, Corrective Action 14.A.5)		Q100	14.A.7 Revise the alarm setpoints to prevent nuisance alarms and revise operating procedures to provide appropriate response to alarms when they occur.	14.A.7.1 Verify the setpoints are revised and procedures changed.
Q101 Q104 Q106	14.6 Potential flow diversion through combined pump discharge relief valve was not considered in the analysis. (Root Causes 14.A, Corrective Action 14.A.6)			14.A.8 Perform calculations to address core spray strainer high differential alarm setpoint.	14.A.8.1 Verify the calculations are performed and results accepted.
				14.A.9 Evaluate the alarm setpoint and revise it and associated procedures if necessary.	14.A.9.1 Verify the evaluation and associated follow-up actions were performed.

TABLE 14

SPECIFIC ISSUE 14. SAFETY SYSTEM FUNCTIONAL INSPECTION

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
14.7 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, Corrective Action 14.A.7) Q101 Q104 Q106		14.A.10 Revise procedures for filling torus.	14.A.10.1 Verify that the procedures are revised.
		14.A.11 Relabel the Emergency Operating Procedure's graphs to clarify applicability.	14.A.11.1 Verify that the procedures are revised.
		14.A.12 Revise the Emergency Operating Procedure to clarify water level indication limitations.	14.A.12.1 Verify that the procedures are revised.
14.8 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, Corrective Action 14.A.8) Q101 Q104 Q106		14.A.13 Evaluate the system capabilities and revise Technical Specification Bases as appropriate.	14.A.13.1 Verify the evaluation was performed and appropriate follow-on activities pursued.
		14.A.14 Evaluate HPCI/Feedwater System capability including 10 CFR 50.59 safety evaluation. Q103	14.A.14.1 Verify the evaluation was performed.
14.9 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, Corrective Action 14.A.9) Q101 Q104 Q106		14.A.15 Perform calculations to demonstrate capability.	14.A.15.1 Verify the calculations are performed.
		14.A.16 A) Control the pump curves and include them in the Configuration Management Program. B) Perform a test to validate the curves during start-up.	14.A.16.1 A) Verify the curves are being controlled and in Configuration Management. B) Verify the test results are acceptable.
		14.A.17 Reassess the design of the "Keep Fill System."	14.A.17.1 Verify that a reassessment is done.
		14.A.18 Modify the instrument range.	14.A.18.1 Verify the range is modified.
		14.A.19 Assess the potential impact of pump cycling.	14.A.19.1 Verify the assessment is complete.
14.10 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, Corrective Action 14.A.10) Q101 Q104 Q106			

TABLE 14

SPECIFIC ISSUE 14. SAFETY SYSTEM FUNCTIONAL INSPECTION

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
14.11 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, Corrective Action 14.A.11) Q101 Q104 Q106		14.A.20 Issue pump curves for all safety related pumps in a controlled manner and add them to configuration management system. Revise drawings and FSAR. 14.A.21 Correct or revise operating procedures and operator aids as required.	14.A.20.1 Verify that pump curves have been issued in a control manner and added to configuration management system. Verify that drawings and FSAR have been revised. 14.A.21.1 Verify that operating procedures have been corrected or revised as required.
14.12 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, Corrective Action 14.A.12) Q101 Q104 Q106	14.B Procedures were less than adequate in that data/computations derived from or used to support them were wrong or incomplete.	14.B.1 Evaluate and justify previous conclusions why vendor recommendations were not included in Niagara Mohawk Maintenance procedures. Where justification cannot be provided identify and develop schedule to modify appropriate procedure. Q105	14.B.1.1 Verify that the conclusions are evaluated and justified. Q105
14.13 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, Corrective Action 14.A.13) Q101 Q104 Q106	14.C Training was less than adequate with regard to determining valve position locally.	14.C.1 Provide training on local valve position indication to non-licensed operators.	14.C.1.1 Verify that training has been conducted.
	14.D Audits/evaluations lacked technical depth.	14.D.1 Implement a permanent repair to the valve and evaluate the impact of the injection holes. 14.D.2 Address all those items determined to have a potential impact on plant start-up. 14.D.3 Evaluated/address each of the specific material deficiencies identified.	14.D.1.1 Verify the repair and evaluation are complete. 14.D.2.1 Verify that an evaluation has been performed. 14.D.3.1 Verify that the specific deficiencies have been evaluated.
14.14 No analyses existed to support the FSAR statement that electric power for the HPIC/FW 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/FW System would be available. (Root Cause 14.A, Corrective Action 14.A.14) Q101 Q104 Q106			

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TABLE 14

SPECIFIC ISSUE 14. SAFETY SYSTEM FUNCTIONAL INSPECTION

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
14.15 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, Corrective Action 14.A.15) Q101 Q104 Q106		14.D.4 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.	14.D.4.1 Verify that assessment has been completed and that any additional issues are included as restart requirements.
14.16 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, Corrective Action 14.A.16.a and b.) Q101 Q104 Q106			
14.17 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, Corrective Action 14.A.17) Q101 Q104 Q106			
14.18 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, Corrective Action 14.D.1) Q101 Q104 Q106			
14.19 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, Corrective Action 14.A.18) Q101 Q104 Q106			
14.20 The motor-driven feedwater pumps were not designed to support the frequent starting that may be required by the HPCI/FH System Reactor Water Level Control Modifications and Operating Procedures. (Root Cause 14.A, Correcti[illegible]ion 14.A.19) Q101 Q104 Q106			

TABLE 14

SPECIFIC ISSUE 14. SAFETY SYSTEM FUNCTIONAL INSPECTION

	SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
Q101 Q104 Q106	14.21 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, Corrective Action 14.D.2)			
Q101 Q104 Q106	14.22 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, Corrective Action 14.B.1)			
Q101 Q104 Q106	14.23 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, Corrective Action 14.D.3)			
Q101 Q104 Q106	14.24 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, Corrective Action 14.C.1)			
	14.25 Design information was not properly translated into operating, test and safety study guidance. There was failure to update design documentation after system modifications. (Root Cause 14.A, Corrective Action 14.A.20)			
	14.26 Operating proceduraes and operator aids were not adequate. (Root Cause 14.A, Corrective Action 14.A.21)			

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.

TABLE 17

SPECIFIC ISSUE 17. INSERVICE TESTING

SUB-ELEMENT	ROOT CAUSE	CORRECTIVE ACTION	VERIFICATION ACTION
17.1 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)	17.A The IST Program was not adequately reviewed by NMPC. It was not maintained as a controlled document.	17.A.1 Establish administrative controls requiring adequate NMPC review and control of IST Program.	17.A.1.1 Verify procedures established defining Niagara Mohawk responsibility for IST Program development.
17.2 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)		17.A.2 Finalize and implement the second interval IST Program in accordance with established administrative controls to include all ASME Class 1, 2, and 3 safety-related pumps and valves.	17.A.2.1 Verify completion of second interval IST Program. 17.A.2.2 Verify implementation of second interval IST Program.
		Q112 17.A.3 Obtain NRC approval of Relief Requests required for the second interval IST Program.	Q112 17.A.3.1 Verify receipt of NRC approval on Relief Requests for second Interval IST Program.
	17.B There were no interfacing procedures to ensure that changes to the plant were reviewed for impact on the IST Program.	17.B.1 Establish administrative controls to integrate Plant, Design and Licensing changes into the IST Program.	17.B.1.1 Verify procedures established to integrate Design and Licensing changes into the IST Program.
	17.C Misinterpretation of 10CFR50.55A(G) and Technical Specifications. The IST Program was assumed to be fixed for the 10 year interval.	17.C.1 Provide training to appropriate Niagara Mohawk personnel on procedures defining development and maintenance of IST Program (also see Corrective Action 17.A.3).	17.C.1.1 Verify training provided on procedures defining development and maintenance of IST Program.

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

APPENDIX A

RESTART TASK FORCE CHARTER
&
INTEGRATED TEAM CHARTER

INTERNAL CORRESPONDENCE
FORM 112-2 R 02-80 55-01-013

NIAGARA MOHAWK

FROM L. Burkhardt, III

Distribution

DISTRICT Nine Mile Point

DATE February 23, 1989 FILE CODE

SUBJECT Revision to 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 Point Unit 1 restart effort in direct response to U.S. Nuclear Regulatory Commission's Confirmatory Action Letter 88-17 dated July 24, 1988.

Objectives:

- Facilitate line management buyin 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.

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 Executive Vice President - Nuclear Operations. 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 and 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 ourself it is complete, responsive and realistic prior to finalizing it.
- Finalize and obtain Senior Management approval of Restart Action Plan. Prepare presentation material for management verbal executive summary presentation to NRC and other groups such as Niagara Mohawk Board of Directors.

- Followup, track, report and help identify and resolve any difficulties associated with initial implementation of restart action plan tasks.
- Provide routine status reports and communications regarding status and 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.
- Perform other tasks as directed by Executive Vice President - Nuclear Operations.

L. Burkhardt, III

LB/JAP/jrs
1344N

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G. D. Wilson
C. L. Stuart
K. A. Dahlberg
J. Kroehler, Jr.
W. C. Drews

February 23, 1989

NINE MILE POINT UNIT 1 RESTART TASK FORCE MEMBERSHIP

NIAGARA MOHAWK EMPLOYEES

Name		Participation
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. NMP1 - 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
A. Freedman (MAC)	Part Time

INTERNAL CORRESPONDENCE
FORM 112-2 R 02-80 55-01-013

NIAGARA MOHAWK

FROM	J. L. Willis/C. D. Terry	DISTRICT	Nine Mile Point Nuclear Station
TO	Distribution	DATE	December 12, 1988 FILE CODE NMP43403
		SUBJECT	Integrated Restart Team Charter

You are designated a member of an Integrated Restart Team which will meet on a regular basis with Restart Task Force representatives to provide input to the restart effort and to resolve issues encountered in the development, implementation and self-assessment of the restart actions. The chairperson of the team is K. A. Dahlberg and his alternate is B. D. Wolken.

On completion of the restart effort, the Self-Appraisal Team will assume functions of the Integrated Restart Team in connection with the Nuclear Improvement Program.

This memo supersedes and cancels the J. L. Willis/C. D. Terry memo of November 2, 1988 which established the temporary Generation/Engineering Restart Team.

J. L. Willis
General Superintendent Nuclear Generation

C. D. Terry, Vice President
Nuclear Engineering and Licensing

JLW/CDT/DSB/jma
(48141)

cc: J. A. Perry

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REV 1

INTERNAL CORRESPONDENCE
FORM 112-2 R 02-80 55-01-013

NIAGARA MOHAWK

FROM J. L. Willis

S. F. Manno
D. R. Palmer

DISTRICT Nine Mile Point Nuclear Station

DATE January 3, 1989 FILE CODE NMP43409

SUBJECT Additions to Integrated Team

An Integrated Team (formerly Integrated Restart Team) composed of Nuclear Division Generation, Engineering and Security managers is functioning in accordance with the attached charter to support the restart effort.

There is a need to expand the membership of this group to include representatives from Nuclear Division support organizations. Therefore, I request that the following individuals be added to the Integrated Team:

C. G. Beckham, Manager - Nuclear QA Operations
R. T. Mearon, Jr., Manager - Nuclear Purchasing
R. T. Kotcamp, Manager - Generation Materials Management

J. L. Willis
General Superintendent Nuclear Generation

JLW/DSB/jma
(48571)

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C. D. Terry
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R. T. Kotcamp

APPENDIX B

PROCESS FOR ASSESSMENT OF ROOT CAUSES

Process for Assessment of Root Causes

This appendix describes the process developed and used to systematically assess the specific issues contained in the NRC letter of May 4, 1988 combined with those issues added during the Unit I outage. It describes the process used to assess the issues identified by Niagara Mohawk and the NRC for common causes of programmatic deficiencies (underlying root causes). Additionally, it describes the process used to develop an effective set of corrective actions to address these causes and deficiencies of both the specific issues and underlying root causes. The general steps of the underlying root cause assessment process are also outlined in Table 1.

Q1

The initial root causes for the specific issues were developed by knowledgable line managers using a variety of methodologies including Niagara Mohawk's Root Cause Evaluation Programs, Kepner-Tregoe (K-T) Problem Analysis, Savannah River Reactor Incident Root Cause Coding Tree and INPO Human Performance Evaluation System (HPES) methods based on the type of issue. Early assessments by Nuclear Generation to identify fundamental deficiencies (underlying root causes) used these same methods.

Three sources of information were identified and assessed as the initial step in the systematic process to determine common causes of programmatic deficiencies. 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 observation/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 initial assessment of various deficiencies, including Specific Issues, for their common causes of concerns/problems, involved using the Savannah River Reactor Incident Root Cause Coding Tree containing seven branches (D1-D7) shown in figure 1. Approximately 75% of the causes were attributed to the Management Systems D5 branch and Immediate Supervision D6 branch. The remaining 25% of the causes were attributed to Procedures, Communication, Human Factors, and Training (D1-D4). The QC branch D7 was not determined to be the cause of any of the identified deficiencies.

Q1

Based on the distribution of causes identified, the Restart Task Force determined the need to modify the Savannah River Reactor Incident Root Cause Coding Tree to expand upon the Management Systems branch. This was necessary to reflect more specific causes involving management and organizational effectiveness of the normal day-to-day running of the business. This resulted in the expansion of Coding Tree to include a branch entitled Management and Organizational Effectiveness. This branch includes the broader programmatic elements of the other branches of the Savannah River Reactor Incident Root Cause Coding Tree related to not only D5 and D6, but the

remaining 25% of the causes related to D1, D2, D3 and D4. At the same time the QC branch (D7) was deleted because it was considered to be a part of the overall Management and Organizational Effectiveness Coding Tree. The Niagara Mohawk Root Cause Coding Tree is contained in Figure 2.

The issues and causes resulting from the assessment of the Historical documents were combined with the two other information sources which were then assessed and sorted. This resulted in the identification of 25 underlying issues which in composite characterized the general issues limiting the performance of management and the organization. These 25 underlying issues were then evaluated resulting in some being combined and others eliminated due to duplication or non applicability. From this effort, 19 underlying issues were retained for further assessment and action.

The Restart Task Force, in colaboration with the Integrated Team, used the Niagara Mohawk Root Cause Coding Tree to assess these 19 underlying issues. Corrective and verification actions for each root cause for the underlying issues were developed. 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.

In parallel with the work on the underlying issues, a final review was conducted by the Restart Task Force and line management of the root causes for each specific issue using Niagara Mohawk Causal Coding Tree as a guide to assure systematic coverage of the issue. As the root causes were identified, they were characterized in terms relating to sub-elements to the issue itself to promote the development of effective correction actions.

The work on the underlying issues continued to assess the root causes for commonality. This assessment resulted in selecting the specific areas of the Niagara Mohawk Root Cause Coding Tree reflecting the bulk of the root causes. The management and organizational effectiveness branch contained all the causes selected with the areas tagged M2, E16, M4, E15 and M3 containing 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 underlying issues. Namely:

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.

Q1

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.

Corrective action objectives were developed under each underlying root cause. Once these objectives were firmed up, each corrective action pertaining to underlying issues 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.

Q22

Programmatic aspects of the stated root causes are also reflected as part of the five Underlying Root Causes. Therefore, carrying out corrective actions related to the five Underlying Root Causes also provides for preventive action measures to minimize recurrence of similar specific issues in the future.

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 causes; 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
SAVANNAH RIVER REACTOR INCIDENT ROOT CAUSE CODING TREE

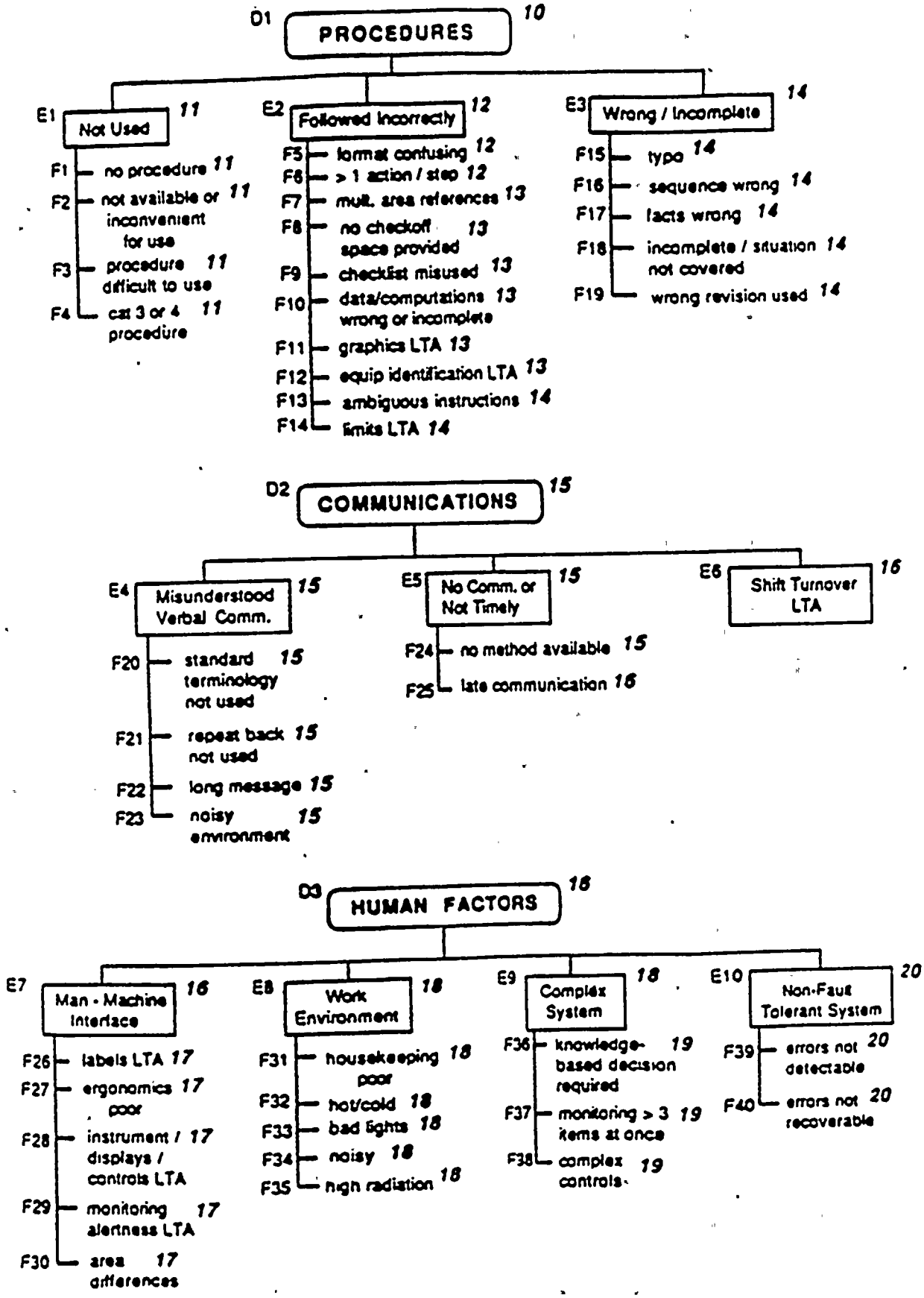


FIGURE 1 (Continued) REV 1

SAVANNAH RIVER REACTOR INCIDENT ROOT CAUSE CODING TREE

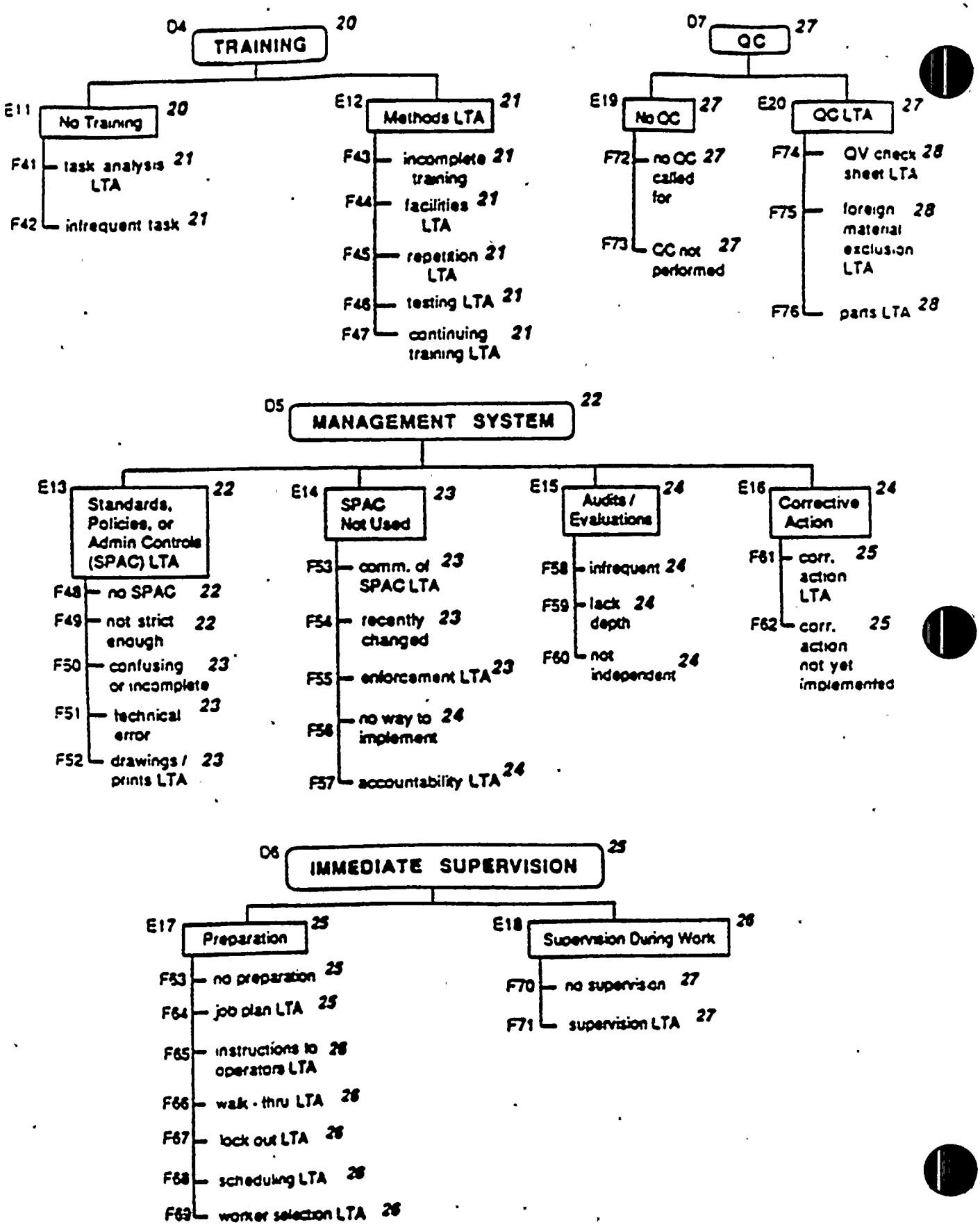


FIGURE 2 (Continued) REV 1

NIAGARA MOHAWK ROOT CAUSE CODING TREE

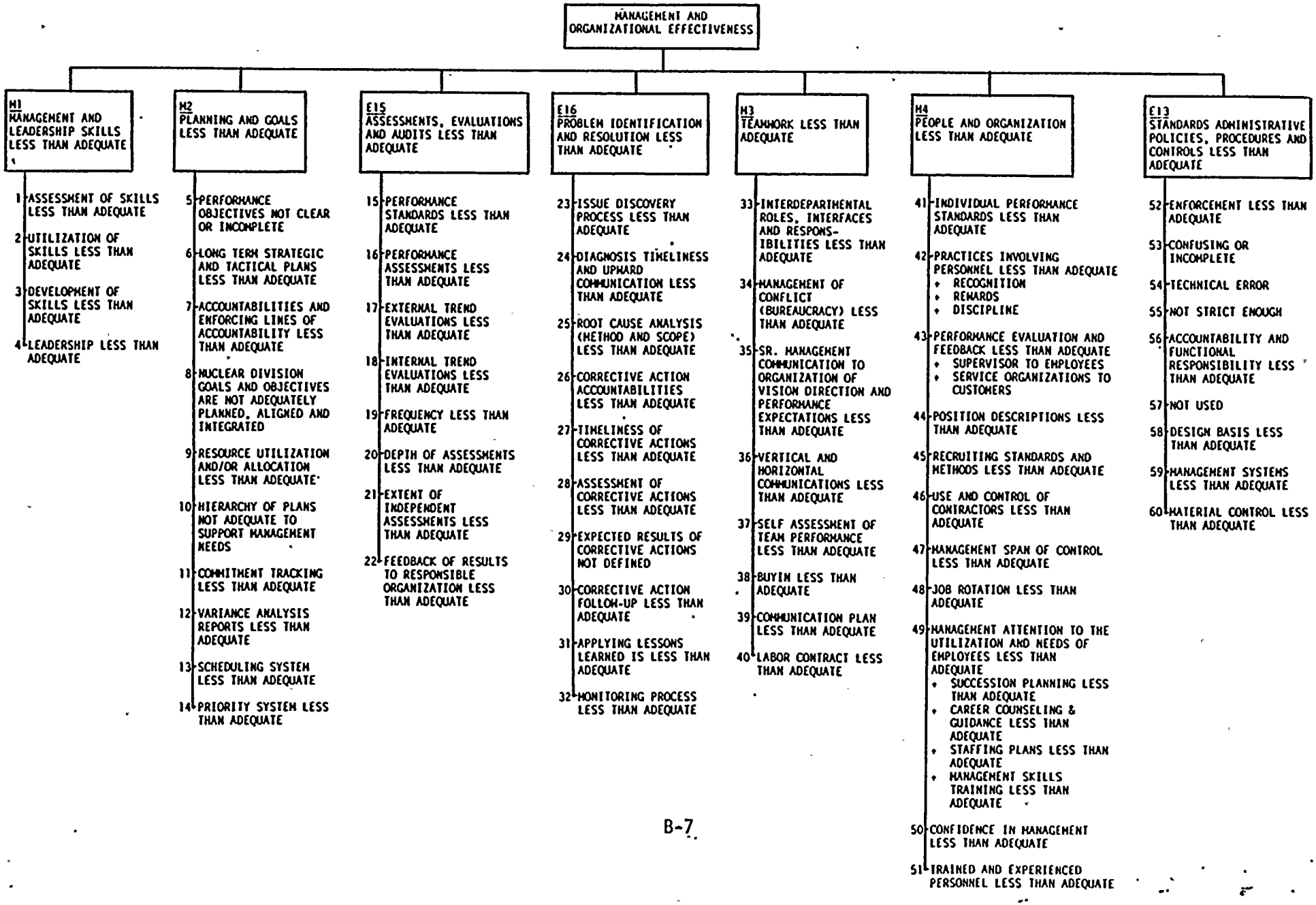


FIGURE 2 (Continued)
NIAGARA MOHAWK ROOT CAUSE CODING TREE

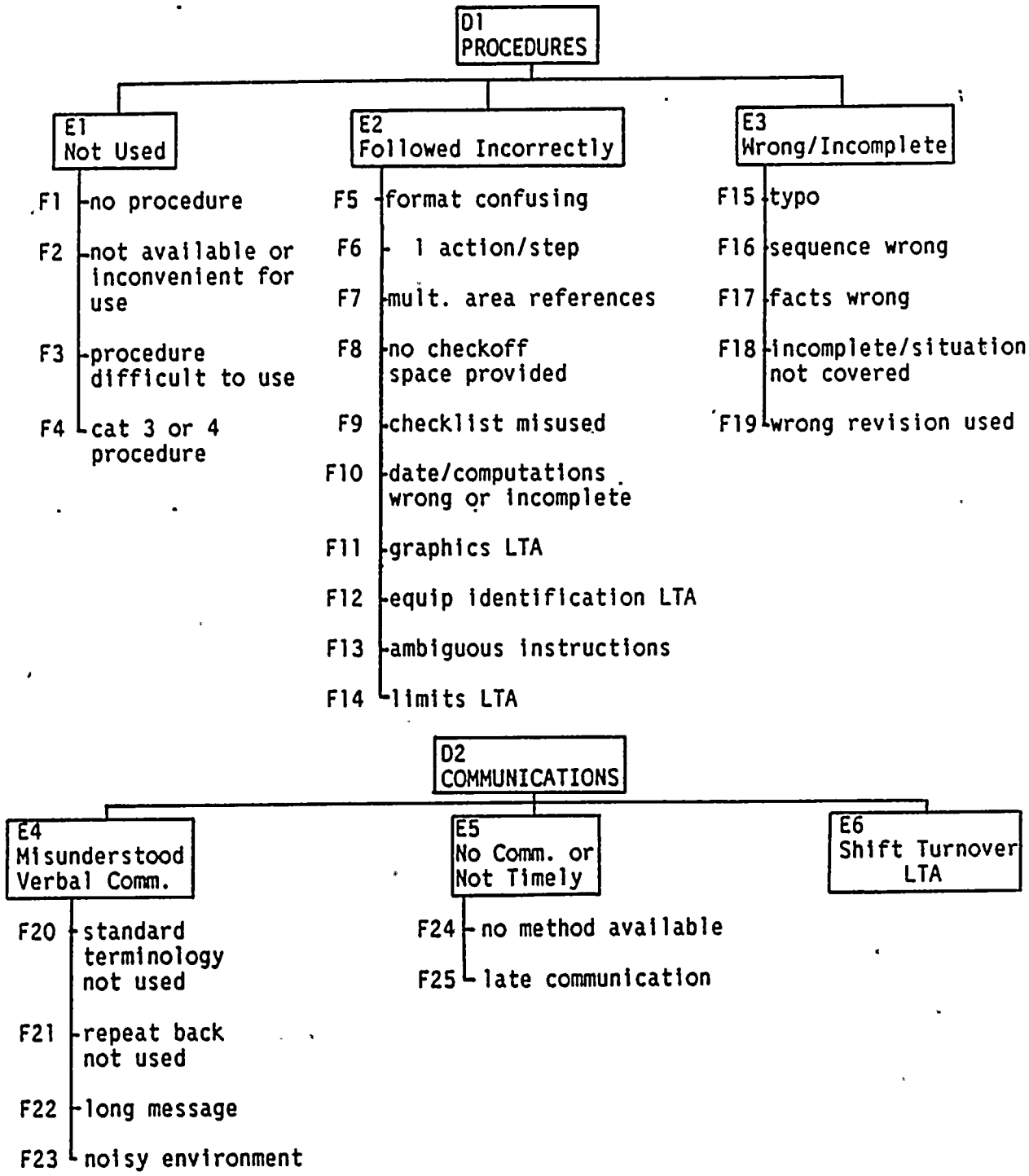
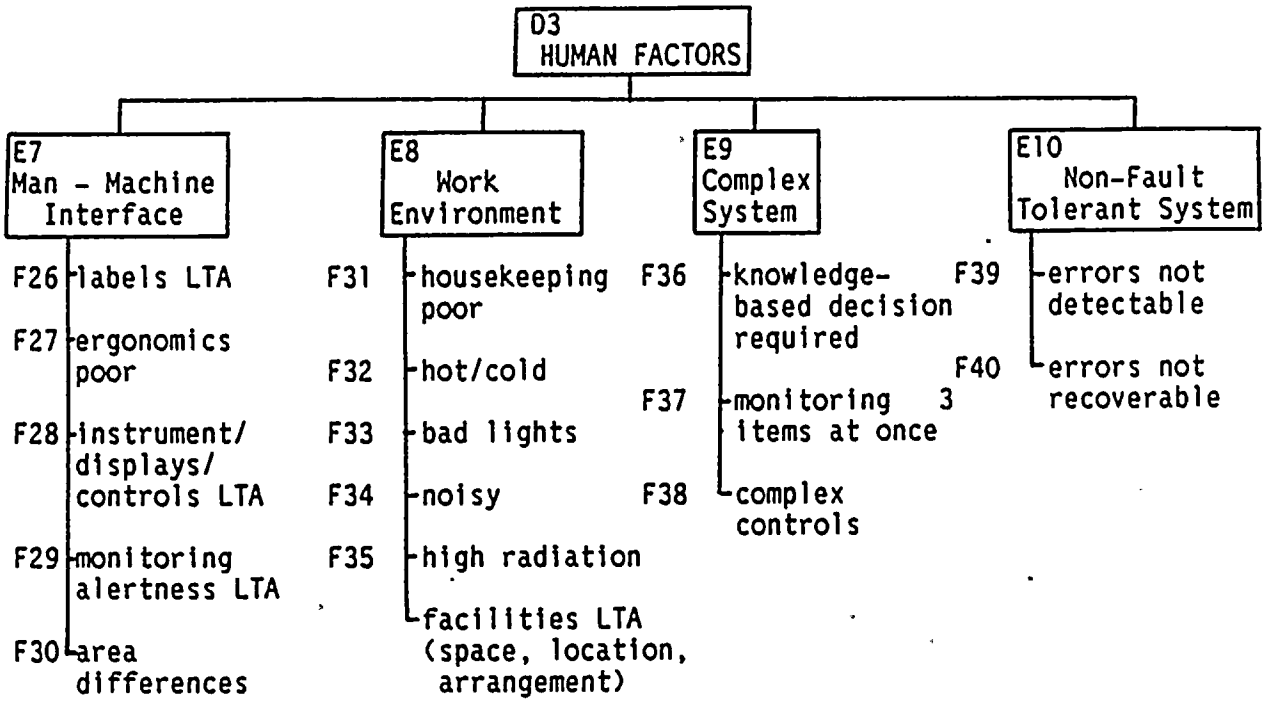


FIGURE 2 (Continued)
NIAGARA MOHAWK ROOT CAUSE CODING TREE



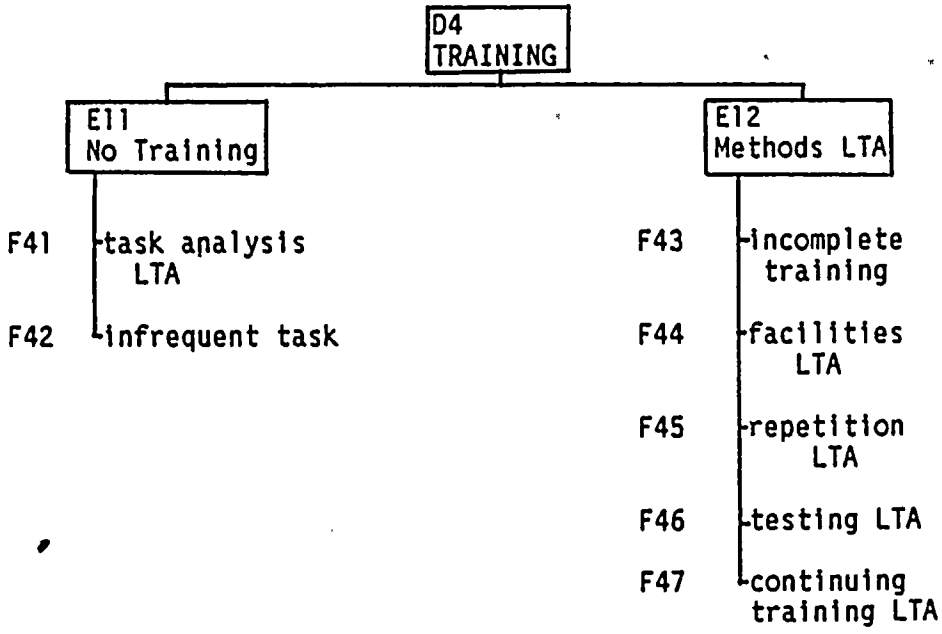
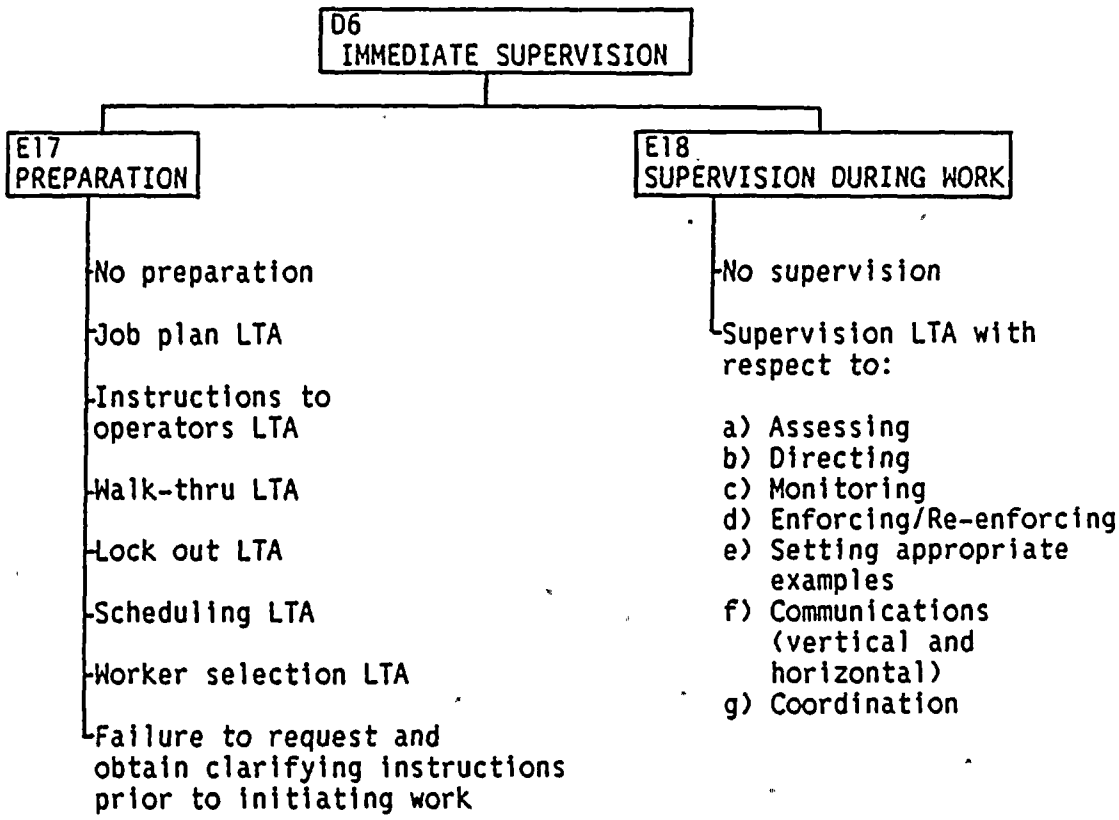


FIGURE 2 (Continued)
NIAGARA MOHAWK ROOT CAUSE CODING TREE



APPENDIX C

PROCESS FOR PRIORITIZING CORRECTIVE ACTIONS

Process for Prioritizing Corrective Actions

The purpose of this Appendix is to explain the process used to prioritize corrective actions and provide the justification for why actions completed after restart will not adversely affect safe plant operation. Appendix B describes how the corrective actions were developed and the relationship between the long-term strategies contained in the Restart Action Plan and the corrective actions designated Priority 2 or 3 status in the Nuclear Improvement Program.

Each corrective action was evaluated to determine its significance to safe plant operation or its necessity to demonstrate sufficient progress on resolution of issues that will not be fully resolved before restart. The prioritization of corrective actions can be characterized as follows:

Priority 1 - Those corrective actions considered necessary to support safe operation of the plant, to demonstrate sufficient progress in weak performance areas, or to correct significant deficiencies.

Priority 2 - Corrective actions which identify additional improvements to areas which are functionally satisfactory now or which when completed achieve the desired cultural environment.

Q5
Q6

Priority 3 - Corrective actions involving longer-term enhancements to programs/processes which are considered currently satisfactory.

Corrective actions requiring completion before restart were classified as Priority 1. Completion of Priority 2 and 3 corrective actions will establish levels of performance beyond that necessary to support safe operation and is, therefore, not required before restart.

Where significant deficiencies were identified, Priority 1 corrective actions were developed to address them. The methods used to determine potential impact on plant operation, as described below, typically included consideration of the following:

A. Whether the action is needed to resolve known hardware or programmatic deficiencies to ensure equipment/system operability.

B. An assessment of several scenarios, e.g., what if we started up and missed a Technical Specification required surveillance. (This resulted in Corrective Action 1.2.3 being classified a Priority 1).

C. The relative impact on employee effectiveness and attitudes.

D. Whether the corrective action contributes significantly to our ability to identify, avoid or resolve problems.

E. Whether other corrective actions, which if implemented, accomplish similar results.

F. Whether the corrective action contributes toward identifying and/or describing the desired cultural environment.

The process used to assess the impact of corrective actions on safe plant operation consisted of a review of corrective actions by several levels of the organization representing a cross section of the Nuclear Division and its support organizations. Typically, reviews were done by the assigned Task Manager (for Specific Issues), the Restart Task Force, the Integrated Team, and Senior Management.

As an initial step in the priority process, the Integrated Team reviewed each corrective action listed for each underlying issue and assigned each corrective action a priority.

The Integrated Team reviewed each corrective action and its associated priority again after it was redistributed under its respective Corrective Action Objective. This resulted in some changes in corrective action priorities as each corrective action was considered in the context of the group of corrective actions to be carried out to satisfy its Corrective Action Objective.

Senior Management reviewed the recommended priority for each corrective action, considering the corrective action both individually and in the context of a group of corrective actions under each Corrective Action Objective, to determine if the corrective actions collectively would be sufficient to satisfy the Corrective Action Objective. Senior Management also assessed if the intended completion of each corrective action either before or after restart was considered reasonable based on the methods used to prioritize them.

Q5
Q6

During these reviews, each participant was given the opportunity to express his/her position. The merits of these positions were scrutinized, debated, and agreed upon. During this process some corrective actions had their priority changed. Several were changed from a 2 to a 1, some Priority 2 and 3 corrective actions were subdivided and the resulting elements were designated as Priority 1 corrective actions. Other corrective actions were lowered in priority based on information presented and discussed in group meetings.

The reviews were iterative and participative in that each reviewing body communicated extensively with the others, i.e., feedback was established and maintained. The collective judgment of the participants provided the basis for deciding on the priority of each corrective action. Additionally, employee feedback was reviewed to ensure general consensus with the direction and the priorities of the improvement program. This resulted in some additional changes in some corrective actions and some of the priorities assigned to certain corrective actions.

Priority 1 items are scheduled for completion prior to restart. Priority 2 items are projected to be completed within approximately one year following restart. Priority 3 items are intended to be completed within a five year time frame after startup. Since the Nuclear Improvement Program is considered a "living" process, periodic review, evaluation and adjustment may affect the longer term completion dates currently envisioned.

The process used for prioritizing corrective actions was complete and comprehensive and provides confidence that the priority assignments are appropriate. Using the process, Niagara Mohawk has identified Priority 1 corrective action that when considered in conjunction with other day to day and programmatic activities, will establish the conditions necessary and sufficient to safely operate the plant.

ATTACHMENT 1

SUMMARY OF CHANGES
NMPC QUALITY ASSURANCE TOPICAL REPORT
for
NINE MILE POINT
NUCLEAR STATION OPERATIONS

QATR-1, REVISION 4

The signature page has been revised to reflect a change of Senior Management.

Subsection 1.1 has been revised to clarify description of the Meter & Laboratory organization unit and clarify who performs quality assuring functions.

Subsection 1.2.2 (I.A) has been reorganized to reflect the new nuclear organization effective in November 1988. The Executive Vice President of Nuclear Operations replaces the Senior Vice President of Nuclear and the General Superintendent Nuclear Generation replaces the Vice President of Nuclear Generation.

Other changes in subsection 1.2.2:

1.2.2(I.A2,b) - Changes the word welding to maintenance. Adds I&C calibration responsibility.

1.2.2(I.A3,e) - Deletes responsibilities of Technical Superintendent for Coordination of Inservice Inspection and Testing Program. Deletes Instrument & Control, Calibration and Maintenance Functions.

1.2.2(I.A4) - Updates the responsibilities of Superintendent of Chemistry and Radiation Management and his direct reports.

1.2.2(I.A5) - Adds new position of the Director Regulatory Compliance.

1.2.2(I.B) - Changes reporting, the Vice President Nuclear Engineering and Licensing now reports to the Executive Vice President.

1.2.2(I.B1) - Reworded Manager of Nuclear Engineering responsibilities to "Nonconformance Dispositions."

1.2.2(I.B2) - Adds new position with primary responsibility for Licensing.

1.2.2(I.B3) - Adds a new manager of Site Engineering reporting directly to Vice President of Nuclear Engineering and Licensing. This position includes responsibilities for Inservice Inspection/Testing as well as other Site Engineering responsibilities.

ATTACHMENT 1
(CONTINUED)

1.2.2(I.B4) - Revises reporting level of the Manager of Nuclear Technology. Removes responsibility for Nuclear Licensing.

1.2.2(I.B5) - Revises reporting level of the Manager of Nuclear Compliance and Verification.

1.2.2(I.B6) - Changes title and responsibilities of the Manager of Engineering Services and revises reporting level.

1.2.2(I.B7) - Adds position description of Manager Special Projects reporting to the Vice President of Nuclear Engineering and Licensing.

1.2.2(I.C) - Revises Senior Vice President's responsibilities.

1.2.2(I.D) - Revises Manager of Nuclear Security reporting level and functional responsibilities.

1.2.2(I.E) - Adds a new position, the Manager of Nuclear Division Projects and responsibilities of his direct reports.

1.2.2(I.F) - Adds a new position, the Manager Nuclear Services and his direct reports. The Superintendent of Training now reports to the Manager Nuclear Services.

1.2.3(A2) - Adds a new position, the Program Director Nuclear Materials Management. This new position separates Nuclear Materials Management responsibilities from other Corporate Materials Management responsibilities.

1.2.3(B) - Adds a new position, the Fuel Supply Director. This new position separates Fuel Procurement responsibilities from other Purchasing responsibilities.

1.2.3(D) - Reflects title change to Vice President of System Electric Operations.

1.2.4(A) - Revises reporting level of Vice President of Quality Assurance.

1.2.4(A2) - Clarifies scope of responsibilities of Vice President of Quality Assurance.

1.2.4(C2,6,7,8) - Clarifies the duties of the Manager of Nuclear Quality Assurance Operations.

1.2.4(C9) - Adds new position of NDE Supervisor.

ATTACHMENT 1
(CONTINUED)

1.2.4(D2,5) - Clarifies the duties of the Manager of Corporate Quality Assurance.

1.2.4(E1,2,4,5) - Clarifies the duties of the Manager of Quality & Reliability Engineering.

Figure 1.1 - Revised to reflect current organization.

Figure 1.2 - Revised to reflect new Fuel Supply Organization.

2.2.12(f) - Adds drawings to sentence to clarify.

2.2.14(a) - Adds drawings to sentence to clarify.

2.2.16 - Updates reporting and responsibilities for SRAB.

2.2.17 - Updates reporting and responsibilities for SORC.

7.2.3 - Revises qualification of suppliers; adds commercial grade.

Appendix B - Adds interpretation of NQA-1 Supplement 2-S1 regarding qualification of personnel performing inspection and test.

Appendix B - Adds interpretation of Reg. Guide 1.28 regarding qualification of personnel performing inspection and test.

Appendix C - Changed to update current procedures (as of November 1988.)