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SUBJECT: Forwards response containing proposed corrective actions to 881026 summary of restart findings from SSFI.

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NIAGARA MOHAWK

NIAGARA MOHAWK POWER CORPORATION/301 PLAINFIELD ROAD, SYRACUSE, N.Y. 13212/TELEPHONE (315) 474-1511

December 16, 1988
NMP1L 0333

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Re: Nine Mile Point Unit 1
Docket No. 50-220
DPR-63

Gentlemen:

Your letter dated October 26, 1988 provided a summary of the restart findings from the Safety System Functional Inspection (SSFI) conducted at Nine Mile Point Unit 1 and requested a response containing proposed corrective action related to certain items.

During our November 17, 1988 meeting, we provided you with our preliminary plans to address these findings. The attached report provides our response to your letter. This report also addresses the additional information you requested during the November 17, 1988 meeting.

Very truly yours,

NIAGARA MOHAWK POWER CORPORATION

C. D. Terry
Vice President
Nuclear Engineering and Licensing

CDT/SWW/las
2681W
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Response

To

Safety System Functional Inspection

Restart Findings

Identified in the October 26, 1988 Letter

For

Nine Mile Point Unit 1

December 1988

Contents

I. Introduction

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.

This report provides the specific responses to the SSFI restart findings and those items identified during the November 17, 1988 meeting.

Section II responds to the specific issues described in the October 26, 1988 letter. Section III describes Niagara Mohawk's plans for review of other plant systems. Section IV responds to additional comments made by the NRC staff during the November 17, 1988 meeting.

Although schedule commitments are provided for some items, a detailed schedule for all of our commitments associated with SSFI will be provided by January 20, 1989.

II. Responses to SSFI Restart Findings

Issue 1. The following system functional issues must be resolved before the affected systems are declared operable:

a. The Technical Specification limiting condition for operation (LCO) which allows continued plant operations for up to seven days with an inoperable core spray sparger may not be appropriate. The analyses (NEDC 31446P) conducted in accordance with 10 CFR 50.46 and 10 CFR 50, Appendix K assumed two core spray spargers were available to support the complete spectrum of loss of coolant accidents (LOCAs). This LCO appears to be less conservative than any analyzed single active failure to the core spray system.

Response: Niagara Mohawk will submit a revised technical specification which requires two spargers to be operable when irradiated fuel is in the reactor vessel and reactor coolant temperature is greater than 212°F. This is consistent with our latest reload analysis. The revised Technical Specification will require the plant to be in cold shut down within ten hours if any one core spray system becomes inoperable. This technical specification change request will be submitted by January 13, 1989.

Niagara Mohawk is evaluating the possibility of developing a technical specification for single sparger operation at reduced MAPLHGR limits. Operation at reduced MAPLHGR limits will reduce the core spray flow requirements so that flow in one core spray sparger is consistent with the core spray flow used in fuel reload analysis using 10 CFR 50 Appendix K requirements. If justified, submittal of this technical specification change and supporting analyses will take place after restart of the plant.

Niagara Mohawk is reviewing on a sampling basis, Limiting Condition for Operation (LCO) for two (2) other safety systems to assure that the LCO's are consistent with the design bases for these systems. This review will be completed by February 27, 1989.

Issue 1.b(1) Analyses were inadequate and testing of the Core Spray System did not demonstrate system performance as described in the licensing documents for the following reasons:

Net positive suction head (NPSH) for the pumps may not be adequate to support the flows expected during large break LOCAs with containment sprays in operation.

Response: New calculations have been performed that demonstrate that adequate NPSH for the core spray pumps is available to support flows expected during large break LOCAs with containment sprays in operation. These calculations were provided to the NRC in our letter dated December 8, 1988. Niagara Mohawk will also perform calculations to verify that the containment spray pumps have sufficient NPSH to provide required flows. These calculations will be completed before the Containment Spray System is declared operable.

Issue 1.b(2) Vortexing analyses did not account for the interactive effects of the two pump suctions which are in close proximity to each other.

Response: Calculations relating to vortex effects have been performed and the results have been evaluated. The evaluation concludes that interactive effects of the core spray pump suctions are negligible and would not impact pump performance. The evaluation also considered vortex effects for one pump set operation since the potential for air entrainment during single pump set operation is greater than for two pumps. This evaluation concludes that the potential air entrainment for one pump set operation would not affect pump or system performance.

These calculations and evaluations were provided to the NRC in our letter dated December 8, 1988. In addition, Niagara Mohawk will evaluate containment spray pump operation for this vortexing interaction. This evaluation will be completed prior to declaring the system operable.

Issue 1.b(3) System resistance curves did not account for all the components in the system.

Response: Calculations have been performed that account for all the system components. These calculations were provided to the NRC in our letter dated December 8, 1988. Subsequent to the December 8, 1988 letter, Niagara Mohawk identified several additional sources of bypass flow. Calculations of this bypass flow and its effect on the Reload Licensing Basis (10 CFR 50, Appendix K LOCA Analyses) will be submitted when the evaluation is complete.

Issue 1.b(4) System pump curves did not appear to be controlled or validated by testing over the full range of expected flows.

Response: The core spray system pump curves will be issued in a controlled manner prior to restart. In addition, these curves will be included in the Nine Mile Point Unit 1 Configuration Management System to ensure that the effects of future system modifications on pump curves are properly addressed.

A one time test of each core spray pump combination (core spray pump plus core spray topping pump) will validate the performance of the pump combination at several flow rates. Because of limitations in the core spray test return line size, maximum flow rates for this test will be approximately 3,000 gallons per minute (GPM). After validation of the combined pump curve, surveillance testing will continue to be performed at a single flow rate to demonstrate that performance falls on or above the pump curve. This is consistent with ASME Section XI, Rules for Inservice Inspection of Nuclear Power Plant Components.

In addition to the specific actions on the core spray pumps, Niagara Mohawk will issue a controlled set of pump curves for each safety related pump. These pump curves will be added to the Configuration Management System. To ensure that safety-related pump characteristics are not affected by future maintenance, post maintenance test requirements will include validation of the pump performance against the pump curve at several flow rates after major maintenance of pumps, i.e. those having the potential to affect pump performance, such as impeller replacement. The revised post-maintenance test requirements will ensure that pumps are maintained to meet their design basis.

Issue 1.b(5) Potential flow diversion from the reactor through the combined pump discharge relief valve was not considered in any analyses.

Response: Calculations have been performed that include the effect of the partial flow diversion through the combined pump discharge relief valve. These calculations were provided to the NRC in our letter dated December 8, 1988.

Subsequent to our December 8, 1988 letter, Niagara Mohawk identified several additional sources of bypass flow. Calculations of this bypass flow and its effect on the Reload Licensing Submittal (10 CFR 50, Appendix K Loss of Coolant Accident Analyses) will be submitted when the evaluation is complete.

Issue 1.c(1) 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.

Response: Niagara Mohawk agrees that the core spray low suction and low discharge pressure alarms would annunciate during a large break LOCA. However, there were cautions in the Emergency Operating Procedures that directed the operator to verify that adequate core cooling had been established prior to securing the core spray pumps. In order to provide greater assurance of appropriate core spray system operation, Niagara Mohawk will take the following actions:

a. The core spray low suction pressure set point will be lowered so that it will not alarm during a large break LOCA if the suction strainers are clean. However, the alarm will occur if the suction strainers are clogged. The alarm response in the operating procedure will be revised to provide two distinct responses depending upon plant condition.

   - If the alarm occurs during surveillance testing, the procedure requires that the pumps be secured and actions will be taken to address the cause of the alarm.

   - If the alarm occurs during a LOCA, the operator will be required to verify that adequate core cooling can be provided before securing the pump. If this is verified, the pump will be secured to prevent possible pump damage and maintain its availability for potential use later during the accident.

b. The core spray low discharge pressure alarm set point will be lowered so that it will not alarm during flows expected during a large break LOCA, but will alarm if the core spray discharge line breaks. The operating procedure will be revised to reflect this setpoint.

In addition to these specific actions on the Core Spray System, Niagara Mohawk will review each safety related system to identify areas of similar concern. This review will include areas where response to alarms differ depending on whether the alarm is received during a surveillance test or accident conditions. Appropriate procedure changes will be made if necessary prior to declaring the system operable.

Issue 1.c(2) 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.

Response: Calculations have been performed which indicate that the core spray strainer high differential alarm will not occur at anticipated flow rates unless the strainer is significantly clogged. These calculations will be submitted to the NRC by January 13, 1989. No additional review of other systems is planned, as the core spray system is adequate as designed and installed.

Issue 1.c(3) 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.

Response: The purpose of this alarm is to indicate this relief valve failed to open and to allow the operator to take action to prevent pump damage due to overheating. This overheating could occur if the pumps ran deadheaded (without recirculation flow) for long periods awaiting reactor depressurization. The operators were trained to secure pumps until the reactor had sufficiently depressurized to allow opening of the isolation valves and then to restart the pumps. However, the restarting of the pumps had not been proceduralized.

During the review of this issue, Niagara Mohawk found that the alarm set point was above the shut off head of the pumps and would not have occurred under anticipated operating conditions. Therefore, Niagara Mohawk plans to lower the alarm set point such that the alarm will occur if the relief valve fails to open, but not during system operation during a LOCA. The alarm response will be clarified to indicate that the pumps are to be secured upon receiving this alarm but restarted when the reactor pressure has decreased to a pressure at which the core spray isolation valves will open.

In addition to these specific actions on the Core Spray System, each safety system alarm set point and alarm response will be reviewed. These reviews will be completed before the system is declared operable.

Issue 1.d The Emergency Operating Procedures (EOPs) did not appear to provide adequate guidance for Core Spray System operations in the following instances:

(1) 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.

Response: The procedures for filling the torus have been revised to use normal systems when possible and an alternate system that will function even if a core spray initiation signal is present or the system is in operation.

Issue 1.d(2) The graphs for cautioning whether pump suction 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.

Response: The NPSH and vortex graphs that appear in the Emergency Operating Procedures will be relabeled to more clearly indicate that the flow values are for a single pump set and not for total combined flow from both pump sets. This action will be completed by February 28, 1989.

II. Responses to SSFI Restart Findings (Cont.)

Issue 1.d(3) 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.

Response: Niagara Mohawk believes that the plant operators had been adequately trained to use other instrumentation is the postulated circumstances. However, the Emergency Operating Procedure will be revised with respect to water level indication limitations. This change will be completed by February 28, 1989.

Issue 1.e 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:

(1) 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.

Response: The Nine Mile Point Unit 1 HPCI System is an operating mode of the feedwater system and not a separate system. A statement is made in the Technical Specification bases and in the FSAR that the condensate pumps and the feedwater booster pumps could provide the specified HPCI flow of 3,800 gpm at up to reactor pressures of 450 psig. This statement is made because the Technical Specifications require the HPCI system to be operable at 110 psig, (the original pressure at which the core spray system would achieve full core spray flow of 3,400 gpm). However, since the Nine Mile Point Unit 1 HPCI system is an operating mode of the feedwater system, the feedwater pumps are not placed into service until needed, which occurs at pressures greater than 110 psig.

The value of 450 psig was in error. Calculations have been performed which show that the pressure at which these pumps could provide the flow is at a reactor pressure of approximately 337 psig. These calculations were submitted to the NRC in the letter dated December 8, 1988.

A Technical Specification Bases change will be made to correct the statement in the bases for the HPCI system. This bases change will be submitted by January 31, 1989. An FSAR change will be made at the next FSAR update which is to be filed before June 30, 1989.

This change in pressures at which the condensate pump and feedwater booster pumps can provide the full HPCI flow of 3800 GPM has no significance because if a HPCI actuation signal (automatic turbine trip or low water level) were received, the feedwater pump would automatically initiate and HPCI flow using the entire train (condensate, feedwater booster, and feedwater) would occur.

II. Responses to SSFI Restart Findings (Cont.)

Issue 1.e(2) No analyses existed to support the FSAR statement that electric power for the HPCI/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.

Response: This issue pertains to a statement made in the FSAR that if normal offsite power is lost, electric power for the HPCI system is available from the Bennetts Bridge hydro station. The line from Bennetts Bridge was installed to increase the reliability of the HPCI system. It was not intended to be equivalent to onsite emergency AC power. The design basis for the HPCI system assumes that offsite power is available. In current Licensing analyses (10 CFR 50, Appendix K) no credit is taken for HPCI because it is not an emergency core cooling system. Therefore no further analysis is required or planned.

Issue 1.e(3) 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/FW pump flows.

Response: Calculations have been performed which demonstrate that the entire Technical Specification required volume of water stored in the condensate storage tanks can be transferred to the condenser hot well to support HPCI/FW pump flow. These calculations assume no hot well vacuum and a Technical Specification Bases HPCI flow for one set of HPCI pumps and condensate inventory . These calculations were provided to the NRC in our letter dated December 8, 1988. No additional action is planned, as the system was adequate as designed.

Issue 1.e(4) The pump curves used for HPCI/FW 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.

Response: A set of HPCI/FW pump curves (including condensate and feedwater booster pumps) will be issued in a controlled manner. In addition, these curves will be included in the Nine Mile Point Unit 1 Configuration Management System to ensure the effects of system modifications on pump curves are properly addressed. These actions will be completed before the HPCI System is declared operable.

These pump curves will be validated by testing the pumps at several flow rates. Condensate and booster pump performance will be included in the in-service testing requirements for the HPCI/FW system. Validation of the pump curves will be completed during plant restart, since the test cannot be performed until the reactor feedwater pump is placed in service during plant startup.

II. Responses to SSFI Restart Findings (Cont.)

In addition to the specific actions on the HPCI/FW System, a controlled set of safety related pump curves for each safety related pump will be issued and maintained in the Nine Mile Point Unit 1 Configuration Management System as described in response to Issue 1.c.(1). This action will be completed before declaring any safety system operable.

Also, as described in 1.c.(1), Niagara Mohawk will revise our post-maintenance test requirements to include validation of pump performance after major maintenance to ensure pumps continue to meet their design basis.

Issue 1.f 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.

Response: Operating/testing history does not indicate there is a water hammer concern with the current core spray "Keep Fill System". This is also consistent with Amendment No.44 to the Nine Mile Point Unit 1 Operating License. In that amendment, the NRC reviewed the design of the current core spray "Keep Fill System" and concluded in part that "this system should prevent any water hammer if the Core Spray System were actuated".

Niagara Mohawk is continuing to evaluate options to resolve this issue. Niagara Mohawk will be in further contact with the NRC upon completion of the evaluation.

Issue 1.g The use of "Furmanite" to repair HPCI/FW manual isolation valve 30-10 appeared to be excessive, performed without adequate analyses and may not be a suitable repair to support plant startup.

Response: As discussed during our November 17, 1988 meeting, valve 30-10 has been repaired. The Furmanite has been removed. The "steam cut" surface which required the Furmanite work has been weld repaired. It is Niagara Mohawk's policy to perform this type of permanent repair at the earliest opportunity. In addition, Niagara Mohawk will perform an evaluation of any effects that the Furmanite injection holes may have on the structural integrity of the pressure boundary. Additional corrective actions will be taken if necessary.

This evaluation will be completed and corrective actions, if any, taken before declaring the system operable.

To address the generic implications of the use of Furmanite, Niagara Mohawk will prepare an Engineering Specification to control the use of Furmanite before its next use. In addition, Niagara Mohawk will review the previous use of Furmanite on other safety related valves in the plant before those systems are declared operable. This review will address concerns similar for those on valve 30-10.

II. Responses to SSFI Restart Findings (Cont.)

Issue 1.h — The range of Control Room flow instrumentation for the Core Spray System was not adequate to measure the full range of expected system flows.

Response: The existing instrument range was adequate for the original design basis flow of 3,400 gpm. However, the current licensing basis requires flows up to 4,800 gpm. In addition, the instrument range is not sufficient to cover flows that would be expected if both core spray pump sets are in operation. Therefore, the instrument range will be increased to cover the full range of expected flows.

This modification will be completed before declaring the Core Spray System operable.

The NRC staff asked why this was not identified during the Regulatory Guide 1.97 review. In response to this question, the Regulatory Guide 1.97 review considered the original design basis flow of 3400 GPM. The pump run out flow of 4800 GPM was not recognized as a design requirement at that time.

Issue 1.i — The motor-driven feedwater pumps were not designed to support the frequent starting that may be required by the HPCI/FW System Reactor Water Level Control Modifications and Operating Procedures.

Response: Niagara Mohawk had procedures in effect to direct operators to take manual control of the affected flow control valve. Enhancements were made to ensure it was clear that manual control of the valves is preferable to frequent start/stop operation. Niagara Mohawk believes manual control can be established before pumps cycling will damage the pump motors. This action has been previously demonstrated during actual plant operations. No additional actions are planned.

Issue 2 — The following programmatic concerns are provided for your early initiation of corrective action before the inspection report is issued and your evaluation of whether they require correction before changing operational modes:

Issue 2.a — Examples were found where Surveillance Test Program data collection, results, review and acceptance value determination would not adequately support system operability decisions.

Response: Niagara Mohawk believes that the examples cited during the audit were isolated. However, to verify this Niagara Mohawk plans to perform a sampling of other surveillance records. We will use the results of the sampling to determine, if and to what extent, corrective actions are needed.

II. Responses to SSFI Restart Findings (Cont.)

Issue 2.b Internal responses to industry information such as NRC Information Notices, GE Service Information Letters and INPO information did not always appear to be timely or sufficiently researched.

Response: Before 1980, Niagara Mohawk had an informal program to address industry information. The examples cited during the inspection were industry information that were issued before 1980. Beginning in 1980, Niagara Mohawk formalized the program in response to TMI action items. This program included prioritizing the items by a qualified staff member. Since 1982 the staff member prioritizing the items has held an SRO License. Items having a high probability of impact or high consequences have been addressed promptly, but lower priority items were not addressed in a timely manner. Niagara Mohawk believes the examples cited during the inspection are limited to the period prior to our formal program for review of industry information. While Niagara Mohawk recognizes that the backlog has increased during the 1980 to 1987 period, positive actions were initiated to reduce the number in an aggressive time frame. Based on these recent actions, Niagara Mohawk believes the timeliness and thoroughness of responses to industry information has improved significantly. In addition, the backlog has been reviewed and prioritized to identify start-up related items. All items identified as startup related will be addressed prior to restart.

Issue 2.c Investigation into problems and assessment of reportability in accordance with 10 CFR 50.72 and 10 CFR 50.73 did not always appear to be adequate.

Response: The NRC staff identified the core spray sparger and the isolation valve stroke times as examples of identified problems which were not properly evaluated for reportability. Niagara Mohawk has provided information to the NRC staff regarding these issues and believes that we have performed adequate evaluations and assessments of reportability of these items in accordance with 10 CFR 50.72 and 10 CFR 50.73.

In general, Niagara Mohawk believes that it takes a conservative approach with respect to reportability of items under 10 CFR 50.72 and 10 CFR 50.73. Niagara Mohawk has a low threshold for reportability and some reports are made which might not be required.

The current SALP report for Nine Mile Point Unit 1 also indicates that we take a conservative approach to reporting. It was stated that Niagara Mohawk has made a large number of ENS reports and LERs. While many of the ENS reports were subsequently determined not to be reportable, the NRC staff encouraged Niagara Mohawk to continue the conservative reporting approach.

II. Responses to SSFI Restart Findings (Cont.)

Issue 2.d 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.

Response: Based on its operating history, Niagara Mohawk concludes that Nine Mile Point Unit 1 is well maintained. However, Niagara Mohawk agrees that preventive maintenance is not well documented. We are taking actions to improve documentation of preventive maintenance requirements. We have also completed a review of safety related manuals against the associated maintenance procedures.

During the review of the safety related vendor manual, there were cases where vendor recommendations did not have an associated Niagara Mohawk procedure. These cases were reviewed and at the time Niagara Mohawk concluded that no procedure was required. However, to address the concerns raised during the inspection, Niagara Mohawk will review these cases to reaffirm our disposition or develop appropriate procedures. This action will be completed prior to plant restart.

Issue 2.e 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.

Response: This specific item will be added to the Non-licensed Operator Training Program. This item had been previously identified by the NRC, but the implications had not been followed up at Unit 1. Therefore, in addition to addressing this concern, the Lessons Learned Program at Nine Mile Point Unit 1 is being strengthened as a part of the Nuclear Improvement Program. The Lessons Learned program will look at site issues in addition to plant specific issues. The Nuclear Improvement Program will include near-term and long-term corrective actions for addressing management and organizational effectiveness and long-term corrective actions associated with specific technical issues identified in the NRC Confirmatory Action letter and other technical issues developed during the course of the current Unit 1 outage. The training identified above will be completed by March 15, 1989.

Issue 2.f The QA Audit Program concentrated on programmatic issues and would not necessarily be able to identify significant technical issues with safety system operation, testing, design or maintenance.

Response: Niagara Mohawk agrees that the Quality Assurance Audit Program needs to concentrate more on technical issues. Starting in 1987 the audit program focus has been changed from programmatic issues to technical issues, although it is understood the audit program cannot completely remove the requirement to review programmatic issues. Specific actions have been taken to improve the audit program. These are increased use of Technical Specialists in the areas audited; training of auditors and surveillance personnel in September 1988 in Performance Based audit and surveillance techniques; update of individual audit checklists as audits are performed.

To date, we have completed initial training of our auditors in performance-based auditing. We have begun assigning technical experts to the audit teams. These experts come from various groups within the Nuclear Division. We also have plans to fill existing open auditor positions with technical specialists. Niagara Mohawk expects these actions to have the same positive results as those achieved in our Surveillance Program.

Issue 2.g 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.

Response: All of the specific items identified by the team have been formally addressed and are being closed out.

Niagara Mohawk is increasing its emphasis for personnel to identify deficiencies. Niagara Mohawk is also providing additional training to personnel to "highlight" housekeeping deficiencies. We are also in the process of staffing System Engineers which we believe will establish increased ownership of systems.

Prior to declaring safety related systems operable, a "walkdown" will be performed by a team of engineers and operators. Also Niagara Mohawk is in the process of performing a walkdown of safety-related large bore (greater than 2") pipe supports that were not previously inspected as part of our ISI Program.

III. Plans for Other Systems

Niagara Mohawk believes the calculations provided to the NRC in our letter dated December 8, 1988 demonstrate an adequate original plant design. Niagara Mohawk had previously recognized that calculations and original design bases were difficult to retrieve and had begun plans for a Design Basis Reconstitution Program. Niagara Mohawk plans to present the details of this program to the NRC at a later date.

Briefly, the Design Basis Reconstitution Program will prioritize systems and develop system design basis documents for these systems. We intend to use Niagara Mohawk personnel supplemented by consultants to perform this work. For selected systems as a system design basis is developed, an SSFI type review will be performed. The Design Basis Reconstitution Program is a part of the Nuclear Improvement Program.

In addition to these longer term actions, Niagara Mohawk has reviewed and categorized the areas needing improvement identified by the SSFI. This categorization was then used to develop our response to the specific issues, as well as any generic implications. Examples are the additional actions we are taking on pump curves and the review of other systems, such as containment spray for possible NPSH or vortexing problems. These actions were included in our response to each individual issue.

IV. Additional Commitments

The NRC provided a summary of the November 17, 1988 meeting in a letter dated November 23, 1988. That letter identified five additional concerns. Following are responses to each of the concerns identified.

Issue 1. Based on inspection findings concerning the core spray system alarm setpoints and procedural responses, the staff is concerned that the procedures contain some action statements which operators may be prepared to ignore because they may be inappropriate in certain situations. The licensee should review its procedures to verify that they contain the appropriate actions in all circumstances and retrain the operators, if necessary, to follow procedures.

Response: As indicated in our response to issue 1.c(1), Niagara Mohawk will review other safety-related systems to identify where response to alarms differs depending on whether the alarm occurs during a surveillance test or accident conditions. We will make appropriate procedure changes to clarify actions and responses under varying plant conditions.

Issue 2. As indicated in Enclosure 1, a number of staff concerns have been addressed by the licensee through either design basis calculations that have been located subsequent to the SSFI team visit or through new calculations that were performed subsequent to the team visit, often by outside consultants. The staff requested that these calculations be submitted for staff review. If the results of the NRC review of these calculations are to be factored into the SSFI report, the calculations should be submitted as soon as possible.

Response: These calculations were provided to the NRC in our letter dated December 8, 1988. The calculations were reviewed and approved by Niagara Mohawk and will be part of the Niagara Mohawk Calculation File.

Issue 3. The staff requested a more detailed schedule (i.e., actual dates) for the action items discussed in Enclosure 2.

Response: As available, schedules were included with the individual response. A complete schedule integrated with other restart activities is being developed and a schedule will be submitted January 20, 1989.

Issue 4. The staff is still concerned about the potential for water hammer in the core spray system. The staff is not certain that the proposed analyses and tests would identify the potential for water hammer if it exists. In addition, the licensee has not proposed any action should the potential be identified. The staff suggested that the licensee reconsider the addition of a new design to keep the system filled.

Response: Refer to response for Issue 1.f in Section II of this report.

Issue 5. The licensee should review the plant design bases analyses to verify that the revised calculations do not affect other calculations.

Response: Niagara Mohawk will review any plant design bases analyses that may be affected by revised calculations performed in the course of response to the SSFI. This review will be conducted before these systems are declared operable.