

November 5, 1986  
NMP1L 0112

Dr. Thomas E. Murley  
Regional Director  
U.S. Nuclear Regulatory Commission  
Region I  
631 Park Avenue  
King of Prussia, PA 19406

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

Dear Dr. Murley:

Niagara Mohawk hereby submits a response to Inspection Report No. 50-220/86-07 regarding the modification outage inspection conducted at our Nine Mile Point Unit 1 facility and Corporate office on June 2-13, 1986. The attached response addresses the four violations and three weaknesses contained in the inspection report.

The inspection report cover letter also provided your understanding of our activities and schedules related to the upgrading of our engineering assurance procedures and our evaluation of AC and DC emergency bus loads. The following clarification is provided with respect to those items. Your letter indicated that we would complete an evaluation of the total loads on the AC and DC emergency buses by June 1987. Our intention was to complete a documentation program of DC loads by that date. There has been no significant increase in the load on the DC system. Minor increases have resulted due to the addition of control circuits and two oil pumps for the emergency diesel generators. However, the DC capacity has increased by fifty percent which is sufficient to accommodate the additions indicated above as well as future additions. A study was performed regarding the Class 1E AC power distribution system and submitted to the Commission on September 27, 1982. That study evaluated loads on the emergency bus and included a tabulation of the same. The results demonstrated the adequacy of the system.

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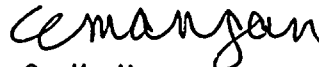
The schedule to complete our documentation program is as follows:

1. Identification and Documentation of AC and DC loads - June 30, 1987
2. Develop procedures for both AC and DC loads such that it will be in place for evaluation of load addition - prior to 1988 refueling and maintenance outage.

We have reviewed the engineering assurance procedures with respect to correctness of reference and incorporation of reference to Topical Report NQA1. Design guidelines with respect to pipe supports will be developed prior to designing modifications to be installed during the 1988 Refueling and Maintenance Outage. In addition, in accordance with our letters of August 15, 1986 and August 31, 1986 to Mr. W. F. Kane, a long term review of procedures is being developed as part of the response to recent allegations made by an I&C technician at Nine Mile Point Unit 1.

Sincerely,

NIAGARA MOHAWK POWER CORPORATION



C. V. Mangan  
Senior Vice President

MGM:bd  
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72671



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NINE MILE POINT UNIT 1

NIAGARA MOHAWK POWER CORPORATION

RESPONSE TO INSPECTION REPORT NO. 50-220/86-07

Notice of Violation Item A

10CFR50, Appendix B, Criterion III "Design Control" states in part, that "... The design control measures shall provide for verifying or checking the adequacy of the design, such as by the performance of design review, ...." and that "...Measures shall also be established for the selection and review for suitability of application of materials, parts ... that are essential to the safety-related functions of the ...systems ..."

Contrary to the above, on June 4, 1986, the inspector identified that one part of the safety related ADS Modification (relays wired in series with adjustable resistors) had not been design verified, nor had it been included in the safety evaluation of the modification. In addition, the inspector identified that the adjustable resistors (ASEA Cat #5245004-332) to be used in conjunction with the 55V AC relays, in the ADS modification, were of insufficient power rating to perform their safety function.

Response

The safety evaluation did not specifically make reference to the resistors and relays. In general, safety evaluations address the criteria outlined in 10CFR50.59 with respect to the overall effect on system safety function but do not necessarily address the "nuts and bolts" of the modification. Reference to applicable design drawings could have been included. Detailed information regarding the adjustable resistors and 55V AC relays was included in the design verification package. However, the insufficient power rating of the resistors was not addressed during design verification process.

Short term corrective action consisted of deleting the subject relay and resistor from the modification. This was accomplished under Drawing Change Request LG012.

Long term corrective action will include improvement of our design verification process as indicated in our response to Weakness Item b and adherence to procedure ND-140, "Minor Design Changes to Modifications."

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Notice of Violation Item B

Nine Mile Point Unit 1 Technical Specification 6.8.1 requires the establishment and implementation of written procedures and administrative policies which meet or exceed the requirements and recommendations of Section 5.1 of ANSI N18.7-1972. Section 5.1 of the ANSI N18.7 requires that modifications be designed and performed in accordance with applicable codes, basis, design requirements, material specification and inspection requirements.

Contrary to the above, the following activities were not accomplished in accordance with prescribed design requirements:

1. Drawings for the modification of Emergency Condenser drain piping supports NO. 05-SCRI-3, 05-SCRI-6, and 05-SCRI-7 show an addition of a plate welded on both sides in each support using a 2" long fillet weld. The plates were found to be installed using welds shorter than the specified length by approximately 1/4" to 3/8".
2. Isometric drawing No. C-26843-C (Sheet 5) for the modification of Emergency Condenser drain piping specifies the distance between the centerline of EC steam piping No. 39-12-B and the elbow for drain piping No. 39-1-BL as 10", and the distance between the 1" coupling and support No. 39-SR-3 on drain piping No. 39-1-A as 3'-4 1/2". Inspection of drain piping installations in the above cases indicated the as-built measurements are 1'-0" and 1'-2", respectively.
3. Detail "D" of drawing No. F-39831-C for modification of Emergency Condenser steam piping anchor 39-A1 required the use of A490 bolts between two of the anchor braces and the wall embedded plate. The connections were installed using a mixture of A325 and A490 bolts.
4. Administrative Procedure AP-6.0, Section 5.4.3, requires that work on modifications shall not commence prior to the issuance of a Modification Work Request and referenced documentation. The support for electrical conduit to hydrogen purge valves No. 201-32, 201.2-03 and 201.2-32 was found to be cut and dismantled from its support to an existing brace on the piping anchor No. 39-A1 which required removal. The removal of the conduit support was performed without a modification work request and required documentation.

Further, Niagara Mohawk Power Corporation's Quality Assurance Program Topical Report invokes the requirements of ANSI N45.2.5 (1974 Edition) for installation and inspection of structural steel.

Contrary to the above, the following activity was not accomplished in accordance with the prescribed inspection requirement:

5. Paragraph 5.4 of ANSI N45.2.5 requires that bolts extend at least two threads beyond the face of the nut. Three of the four anchor bolts installed according to detail "E" of drawing NO. F-39831-C for modification of Steam Condenser anchor 39-A1, were found to have less than the minimum required two threads beyond the face of the nut.

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## Response

1. The contractor's Quality Control had accepted the fillet welds on drain pipe supports Nos.: 05-SCRI-3, 05-SCRI-6, 05-SCRI-7 prior to the NRC Inspector's findings. Niagara Mohawk procedures require system walkdowns on completed work prior to acceptance for service. However, Niagara Mohawk Quality Assurance had not yet performed their final walkdown of these supports at the time of the NRC inspection. Typically, after turnover of completed work, Quality Assurance performs final walkdowns to assure acceptance to specifications. Because of the NRC Inspector's timing, this action had not yet been completed.

The following corrective action has been taken. The weld deficiencies cited were later properly identified on Drawing Change Requests. Calculations were performed using this shorter weld length. These were reviewed and approved by Niagara Mohawk Design Engineering as not affecting the structural integrity of the support. This information is currently being incorporated onto as-built drawings.

2. Corrective action taken with respect to the dimensional discrepancies identified by the NRC is as follows:
  - a. Drawing Change Request (DCR) was issued.
  - b. Pipe Stress analysis model was rerun with the changes.

The reanalysis showed all stresses to be within allowable limits and was completed prior to final acceptance of the system for operation. This information is currently being incorporated onto as-built drawings.

3. Design drawing No. F-39831-C specified that A490 bolts be used for the connection between two braces and the wall embedded plates of pipe support 39-A1. Prior to the NRC inspection, our Structural Engineering Department had identified during a field walkdown that a mixture of A325 and A490 bolts were used. The corrective action taken was to replace all A325 bolts with A490 bolts prior to startup.
4. This item relates to the dismantling of a conduit support without a Modification Work Request or referenced documentation. The conduit hanger in question was supported from a section of anchor 39-A1 which required removal as part of a modification on the Emergency Condenser System, for which a Modification Work Request had been initiated. The dismantling of the conduit hanger was necessary in completing the modification to anchor 39-A1 and therefore, was within the scope of the Modification Work Request. However, no reference documentation was initiated for the purpose of tracking and ensuring that the hanger was remounted. The Electrical Department was notified and the hanger was reinstalled prior to plant startup. In addition, isolation valves 201-32, 201.2-03 and 201.2-32 were all stroke time tested in accordance with surveillance test N1-ST-R8 prior to startup.

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5. Engineering DCR N1Y183M4043LG041 addressed the condition that the bolt was flush with the nut base on 3 of 4 anchor bolts on support 39-A1. Subsequent to the NRC inspection, corrective action of an analytical nature was taken to ensure that structural integrity was maintained, assuming the bolt strength was reduced to account for 2 threads lost from nut engagement. Calculation S14-39-A1 shows that support 39-A1 is adequate for original design loading.

Long term corrective action is described in response to Weakness Items A, B and C of this report.

THE UNIVERSITY OF CHICAGO  
DIVISION OF THE PHYSICAL SCIENCES  
DEPARTMENT OF CHEMISTRY  
5780 SOUTH CAMPUS DRIVE  
CHICAGO, ILLINOIS 60637  
TEL: 773-936-3700  
FAX: 773-936-3700



Notice of Violation Item C

Criterion VI of Appendix B to 10CFR50 requires the establishment of measures to control the issuance of documents such as procedures and drawings, including changes thereto, which prescribe all activities affecting quality. It also requires that these measures assure that documents including changes, are reviewed for adequacy. Section 6.0 of Nine Mile Point Nuclear Station Quality Assurance Program reiterates the same requirements regarding the issuance and review of documents including changes thereto.

Contrary to the above, the drawing for the modification of Emergency Condenser drain piping supports No. 05-SCRI-3 and 05-SCRI-6 inaccurately depicted the existing support-configurations such that installation of the modifications could not be performed as specified on the drawings. Field design changes were performed to modify the supports without properly processing the changes. The changes to the modified installations were neither documented nor incorporated in the respective drawings.

Response

The configuration of the two supports is similar. The inaccuracy described above is in regard to the orientation of a structural angle on each support. Corrective action included issuance of DCR N1Y83M4043 LG044. These changes will be incorporated onto the as-built drawings. The structural design calculations are not affected by this inaccuracy.

Long term corrective action is described in response to Weakness Items A, B and C of this report.

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## Notice of Violation Item D

Criterion X of Appendix B to 10CFR50 requires the identification of specific hold points in appropriate documents when mandatory inspection hold points which require witnessing or inspection are required. Section 10.0 of Nine Mile Point Nuclear Station Quality Assurance Program reiterates the same requirements for the identification of inspection hold points. Section 3.6 of the Functional Specification for the Emergency Condenser Modification invokes the requirements of the Structural Welding Code (D1.1) of the American Welding Society (AWS).

Contrary to the above, hold points were not established, and in-process inspection was not performed for fit-up of structural attachments to base plates for piping supports No. 39-SR2, 39-SR6 and 39-SR7. The connection of the structural attachments to the base plates required "all-around" welds which made it impossible to perform verification of fit-up between the parts joined after completion of the welds. Section 3.3 of AWS D1.1 welding code requires that the fit-up be inspected prior to completion of the weld.

### Response

Our interpretation of Section 3.3 of AWS D1.1 Structural Welding Code is that it does not require fit-up inspection but does require that parts joined by fillet welds be brought into as close contact as practical but not separated by more than 3/16". It also requires that fillet weld sizes be increased by the amount of separation when it exceeds 1/16". It is general practice to establish hold points for welds that are difficult, as determined by the engineer. The welds described above were not considered to be difficult, because they are fillet welds with carbon steel.

The contractors procedure entitled "Seismic Support/Restraint Installation for Safety Related Work," has a Quality Control Inspection Signoff for AWS D1.1-77 acceptance criteria. There were no specific hold points by QC for AWS D1.1-77 welding code criteria. Niagara Mohawk Power Corporation believes that the combination of construction drawing requirements, employment of qualified welding procedures and qualified, experienced welders appropriately assured adequate structural welding practices, along with final visual inspection by Flagg Quality Control. Niagara Mohawk Power Corporation Quality Assurance has also inspected the restraints in question to ensure physical integrity and conformance to design where appropriate.

Niagara Mohawk Quality Assurance has developed and approved a surveillance checklist including AWS Section 3 attributes that will be used on future restraint/support work when evoking the AWS D1.1 welding code. The checklist will be used on a sampling basis when reviewing contractor welding activities. Use of the checklist will help assure that contractor activities are conducted in compliance with code requirements or appropriate corrective action will be taken.

The first part of the document discusses the general principles of the project. It outlines the objectives and the scope of the work. The second part describes the methodology used in the study. This includes the data collection methods and the analysis techniques. The third part presents the results of the study. These are discussed in the context of the project's objectives. The final part concludes the document and provides recommendations for future work.

The methodology section details the experimental design and the data collection process. It explains how the data was gathered and how it was analyzed. The results section provides a comprehensive overview of the findings. It includes a discussion of the statistical significance of the results and their implications for the project. The conclusion summarizes the key findings and offers suggestions for further research.

The document also includes a section on the limitations of the study. This section identifies the factors that may have influenced the results and discusses the potential for bias. It also highlights the strengths of the study and the contributions it has made to the field. The references section lists the sources used in the document, providing a clear path for further exploration of the topic.

The references section contains a list of the works cited in the document. These include books, articles, and other sources that have informed the research. The document is well-organized and easy to read. It provides a clear and concise overview of the project and its findings. The use of clear language and logical structure makes it an excellent resource for anyone interested in the topic.

The document is a valuable contribution to the field. It provides a detailed and thorough analysis of the project and its findings. The clear and concise writing style makes it an excellent resource for anyone interested in the topic. The document is well-organized and easy to read, and it provides a clear and concise overview of the project and its findings.



## Weakness Item A

### Contractor Quality Assurance

Several deficiencies were identified during the inspection of the Emergency Condenser piping modifications. When these deficiencies are viewed collectively, they indicate an apparent weakness in the contractor's quality assurance inspection program. Further, examination of Niagara Mohawk surveillance reports of construction activities performed by the contractor indicated that several deficiencies were identified during these inspections and were subsequently corrected by the contractor. It did not appear, however, that the Niagara Mohawk surveillance program was sufficiently effective in addressing the root cause of these deficiencies to prevent their recurrence.

### Response

The Niagara Mohawk Quality Assurance surveillance program identified several deficiencies in the contractor's Quality Assurance Program during modification activities on the Emergency Condenser Piping Replacement Project during the 1986 Refueling and Maintenance Outage. When assessed collectively, these deficiencies do appear to identify weaknesses in the contractor's Quality Assurance Program. In order to enhance the methods previously employed by Niagara Mohawk Quality Assurance in assessing the contractor's program effectiveness, Niagara Mohawk will revise the Quality Assurance surveillance procedure to require Niagara Mohawk identified installation contractor deficiencies to be addressed directly via Nonconformance Reports/Corrective Action Reports (NCR's/CAR's). Provisions in the Niagara Mohawk Quality Assurance surveillance program will provide for ongoing assessment of the identified deficiencies by the Quality Assurance Program Manager. The activities described will allow for more effective ongoing assessment of installation contractor's Quality Assurance Programs. Revision of the Niagara Mohawk Quality Assurance surveillance procedure will be completed by December 31, 1986.

Niagara Mohawk procedures require system walkdowns on completed work prior to acceptance for service. Based on these walkdown results, Niagara Mohawk has assured satisfactory adherence to specifications on work completed during the 1986 Refueling and Maintenance Outage. An overall review of the performance of contractors who performed safety related work during the 1986 Refueling and Maintenance Outage verifies that the extent of program weaknesses was not widespread, but was unique to one contractor. After review, Niagara Mohawk Quality Assurance believes that the root cause of the problems identified on the Emergency Condenser Piping Replacement Project was the lack of adequate program implementation on the part of the contractor. It appears that the contractor's written program was adequate, but that training of personnel to program requirements and program implementation need to be improved. Niagara Mohawk Quality Assurance recognizes that more aggressive action must be taken in the future to correct installation contractor program problems when they are identified in order to prevent repetitive findings.



## Weakness Item B

### Design Verification Process

The design verification process is not clearly described in the procedures. Specific deficiencies include:

- Inadequate guidance specifying when a modification does or does not require a design verification;
- Inadequate definition of the scope and depth of the design verification review;
- Inadequate guidance regarding the types of documents that should be reviewed during the design verification; and,
- Inadequate definition of what should be included in the design verification report.

### Response

The inspection report discussed several deficiencies identified by members of your staff in our design verification process and associated procedure. As discussed in your report, Niagara Mohawk had already performed a self-appraisal of its design verification activities in support of modifications installed during the Nine Mile Point Unit 1 1986 Refueling and Maintenance Outage. The self-appraisal identified several areas for improvement. These deficiencies along with those identified by members of your staff will be evaluated by Niagara Mohawk for resolution. The corrective action resulting from this evaluation will be implemented in a timely manner to support design verification efforts associated with modifications currently planned for the Nine Mile Point Unit 1 1988 Refueling and Maintenance Outage. If the need arises to perform a multi-disciplined design verification prior to full implementation of the corrective action resulting from our internal review, it will be done in accordance with established procedures. Special attention will be paid to those areas identified by our self-appraisal and your inspection report to ensure the design verification process is accomplished in the proper manner.

MEMORANDUM FOR THE RECORD

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Weakness Item C

Procedure for Modification and Addition

Your procedure for Modification and Addition, AP 6.0, has certain weak areas. These deficiencies include:

- Lack of clarity regarding when SORC approval is required. The current procedure is ambiguous with regard to the need for SORC approval for the modification final design.
- A deficiency regarding the interface between corporate and site personnel. Currently the procedure specifies that the design organization shall meet with site personnel to review the preliminary design. Additional corporate site interface measures such as preliminary design installation walkdown to identify possible interferences, and to avoid the need for numerous design change requests would improve this interface.
- Inadequate specification for placing the necessary marked up drawings in key areas such as the Control Room, Technical Support Center, and the Emergency Offsite Facility, during the interim period from the turnover of the system to the completion of the final updating of the controlled copies of the as-built drawings.

Response

Site Administrative Procedure AP6 is currently under review to identify or resolve deficiencies based on experience gained during the 1986 Refueling and Maintenance Outage. The weaknesses identified above will be addressed during this review process. This revision will be completed such that deficiencies of these types will not be repeated for modifications planned for the 1988 Refueling and Maintenance Outage.

Specifically AP6 will be revised to include, but not limited to:

1. Clarification as to when SORC approval of modification final design is required.
2. Provide instructions for Engineering and Site Technical Department to perform plant walkdowns prior to and during modification installations.
3. Provide instructions and identify the responsible department for maintaining controlled marked-up P&IDs and electrical drawings. These drawings shall be kept in the Control Room, Technical Support Center and the Emergency Offsite Facility during the period from system turnover to the final updating of controlled copies.

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