NIAGARA MOHAWK

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

August 5, 1988
NMP2L 1154

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

Re: Nine Mile Point Unit 2
Docket No. 50-410
NPF-69

Gentlemen:

Attached please find Niagara Mohawk's response to Inspection Report No. 50-410/88-08 dated July 6, 1988. Inspection Report No. 50-410/88-08 addressed our program for establishing and maintaining the qualification of electrical equipment within the scope of 10 CFR 50.49.

Attachment 1 of our response addresses Notice of Violation 50-410/88-08-01 and Unresolved Items 50-410/88-08-02 and 50-410/88-08-03. Attachment 2 provides clarification of certain statements within the Inspection Report based on our understanding of commitments and statements made to your inspection team.

Very truly yours,

NIAGARA MOHAWK POWER CORPORATION

C. D. Terry
Vice President
Nuclear Engineering and Licensing

AER/pns
5400G
Attachment

xc: Regional Administrator, Region 1
Mr. R. A. Capra, Director
Ms. M. F. Haughey, Project Manager
Mr. W. A. Cook, Resident Inspector
Records Management

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ATTACHMENT 1

NIAGARA MOHAWK POWER CORPORATION
NINE MILE POINT UNIT 2
DOCKET NO. 50-410
LICENSE NO. NPF-69

RESPONSE TO INSPECTION REPORT NO. 50-410/88-08

Violation 50-410/88-08-01 and Unresolved Item 50-410/88-08-03

As a result of the inspection conducted on April 18-22, 1988, and in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," 10 CFR Part 2, Appendix C (Enforcement Policy), the following violation and unresolved item were identified:

Violation 50-410/88-08-01

10 CFR 50.49 paragraph (f) requires that each item of electrical equipment important to safety be qualified.

Contrary to the above, on April 22, 1988, the inspector identified that the qualification of the Raychem cable splices associated with Rosemount transmitters CSL*FT126, CSL*PT109, and SFC*LT32A was not demonstrated at the time of the inspection in that the seal length of these splices was less than the qualification requirement (one inch).

This is a Severity Level IV violation (Supplement I).

Unresolved Item 50-410/88-08-03

Following the inspection, on May 10 and May 16, 1988, the licensee called the inspectors stating that they had completed a walkdown of all Raychem cable splices both inside and outside the drywell. The splices inside the drywell all had greater than 2" seal length. Of the splices outside the drywell, they found 22 instances of splices less than 1" seal length. Five splices had WCSF-.050 sleeves only. This configuration was considered by the licensee as qualified, but not in accordance with Procedure E061A. Three splices had 1/2" seal length and two were found less than 1/2", i.e., 7/16" and 3/8" of seal length. The licensee reported that qualification for these splices in their applications was supported by Wyle Laboratories Report No. 17855-2 and its supplement. The report showed 0.3 ma leakage current at 125 VDC under the accident conditions. This information indicates that these splices would be considered qualifiable for the NMP2 applications in which they were found provided that instrument loop accuracy requirements were met. This item is unresolved pending NRC review of licensee's documentation of these findings. (50-410/88-08-03)

Response

Niagara Mohawk Power Corporation admits to the violation and agrees that three of the inspected splices did not meet the one (1) inch minimum splice to cable overlap referenced in the Electrical Installation Specification (E061A). Although the direction provided by the Equipment Qualification program was correct, there were deviations from this established requirement in the installation which were not identified by the concurrent inspection.

The corrective actions outlined below which address Violation 50-410/88-08-01 also provide the information required for resolution of Unresolved Item 50-410/88-08-03.

Corrective Action

1) Equipment Walkdown/Inspections

As a result of these findings, an inspection of Raychem splices, on a sampling basis, was performed by Niagara Mohawk to determine if similar cases of insufficient seal length existed. Approximately 500 Raychem splices were inspected to verify compliance to manufacturer's and Equipment Qualification requirements. These inspections were performed in accident areas (Loss of Coolant Accident/High Energy Line Break) where steam conditions and temperatures up to 340°F are postulated (in which case the splice overlap criteria is 2 inches), and in areas where the maximum accident temperature is postulated as 200°F (in which case the splice overlap criteria is 1 inch). The inspections were performed jointly by teams made up of Electrical Maintenance and Equipment Qualification Engineering personnel with review of data by Quality Assurance personnel. These inspections addressed all aspects of the installation specification including the overlap criteria.

With respect to inspections inside primary containment (where a 2-inch minimum overlap specification applies), a total of 68 Raychem splices were checked. The splices, in all cases, met the installation specification criteria including a 2-inch minimum overlap on each side of the connection area.

The inspections outside primary containment were conducted for splices associated with all transmitters included in the Equipment Qualification program. Of the 227 transmitter installations inspected, 22 instances were found in which the splice to cable overlap of the Raychem Sleeve was less than the 1-inch designated in the plant Electrical Installation Specification E061A. Five of the splices were found with overlap of 1/2 inch or less (worst case 3/8 inch - one instance). Five additional instances were found in which the splice consisted of a Raychem Sleeve type WCSF-050-N without a covering sleeve of Type WCSF-070-N (as directed by the specification).

Qualification for these as-found conditions has been established as noted below; however, with respect to the 5 instances in which the overlap was found to be 1/2 inch or less and the 5 instances in which only the WCSF-050-N sleeve was used, an additional conservatism was added by wrapping these splices with half-lapped layers of Okonite T-95 tape and Okonite Number 35 jacketing tape. The Okonite taping is not considered part of the Equipment Qualification requirement for these devices, but is a conservatism added to provide additional insulation resistance beyond that already provided by the qualified splice(s).

2) Qualification Documentation

As noted above, Niagara Mohawk's walkdown of Raychem splices for 227 transmitter installations during May 1988 revealed 22 configurations where the splice to cable overlap was less than the one (1) inch minimum specified and five (5) installations which used a Raychem sleeve (Type WCSF-050-N) without a covering sleeve of Type WCSF-070-N. Additional qualification data has been added to the NMP-2 Equipment Qualification file to document the qualification of these configurations.

This documentation consists of:

- Wyle NEQ Test Report No. 17855-2, "Environmental Qualification of Raychem WCSF-N Cable Splices," dated September 2, 1986.
- "Supplement to Wyle Report 17855-2, Supplemental Data to be used with Data in Section IV," Reference No. 17855-P-3, dated December 3, 1986.
- Wyle NEQ Test Report No. 17883-1, "Test Program on Okonite Nos. 35 and T-95 Splicing Tapes, a Raychem NPKV-2-16 Stub Connection Kit, and Raychem WCSF-050 Heat-Shrink Tubing," dated January 22, 1987.

Review of the results of these tests has determined that the configurations discussed above are qualified for the environment of NMP-2 Environmental Zone SC261145, which envelopes all other zones in which non-conformities were identified.

3) Review of Quality Assurance Records

In order to determine the potential impact of the inadequate inspections of the original work, copies of documentation associated with the termination and sealing of the transmitter leads were compiled. A review of this documentation revealed the following:

- Ten different Stone and Webster Field Quality Control inspectors had inspected the Raychem splices subsequently found unsatisfactory.

- Stone and Webster Field Quality Control was requested to perform random reinspections of previously installed and inspected Raychem splices both in areas where the accident temperature was specified as 340°F and in those specified as 200°F maximum to verify compliance to Raychem installation guidelines. All inspections were performed in May 1986.

- A memo dated May 21, 1986, was issued which provided the results of the Field Quality Control inspection: 126 splices were inspected in the higher temperature accident areas, all 126 were found to be satisfactory; 54 splices were inspected in the lower temperature areas, 53 were found to be satisfactory, and 1 was determined to be unsatisfactory. The unsatisfactory installation was associated with Rosemount transmitter 2RHS*FT60B. This item was reworked, reinspected and documented on IR's #E6A43937, E6A44003 and E6A44032.

The results of the May 1986 Stone and Webster Field Quality Control reinspection of splices in the higher temperature accident areas are consistent with the findings of the Equipment Qualification walkdown/inspection. These earlier inspection findings reinforce the conclusion made from the reinspection results, that a problem does not exist with Raychem splices located in primary containment. With regard to splices outside containment, a 100% reinspection of splices associated with transmitters was performed and qualification established which envelops all as-found conditions.

The apparent root cause of the problem appears to be a lack of adequate training of Stone and Webster Field Quality Control personnel on the proper installation of Raychem splices. This conclusion is reinforced by the fact that ten different inspectors were involved in accepting the unsatisfactory splices. However, since no deficiencies were identified after May 1986, the period when Stone and Webster rectified its Raychem concern, it appears that once Stone and Webster construction and inspection personnel were further cognizant of Raychem sealing requirements, subsequent installations were satisfactorily completed. None of the splices reinspected by Stone and Webster in May 1986, and found satisfactory, were later identified as unsatisfactory during the Equipment Qualification walkdown.

4) Justification for Continued Operation (JCO)

In accordance with the guidelines of NRC Generic Letter 88-07 and previous NRC guidance, a Justification for Continued Operation (JCO) has been generated and placed in the Equipment Qualification file to address the period prior to discovery, evaluation and correction of the non-conformance.

5) Actions Taken to Prevent Recurrence

The Quality Control inspection criteria for Raychem Splices have been expanded to include a large number of additional attributes. These are documented on a checklist which is part of Quality Control Inspection Plan S-EMP-GEN003-01-A, "Raychem Heat Shrink Installations," dated June 1988.

Electrical Maintenance Procedure No. S-EMP-GEN-003, "Insulating Medium and Low Voltage Power Connectors - Control and Instrumentation Cable," which governs installation of Raychem Splices, is being revised to provide additional conservatism and installation uniformity. Conservatism is being added in this procedure by requiring the as-installed seal (overlap) length to be a minimum of two inches for all cases (with the exception of where prevented by physical limitations, in which case special review and approval of the configuration by Engineering will be required). This revision will be effective September 1988.

Unresolved Item 50-410/88-08-02

Section 13.2 of NRC Inspection Report No. 50-410/88-08 indicates the following:

The inspector physically observed the installed condition of six Limitorque valve operators. They are: 2SWP*MOV15A, 2SWP*MOV17A&B, 2SWP*MOV18A, 2SWP*MOV21A&B. The limit switch covers were removed for close examination. In general, the valve operators were clean, in good order, and exhibited good maintenance and surveillance practices. However, the inspector noticed that three of the six MOV operators inspected (2SWP*MOV17B, 2SWP*MOV18A, and 2SWP*MOV21A) contained unremoved plastic caps on the grease relief valves. Outside the drywell, the MOV operators do not require a grease relief at NMP2, so these three operators were not a concern. However, inside the drywell at NMP2, the MOV operators do require grease reliefs and the question arose as to whether all their plastic caps had been removed. NMP2 committed to conduct an inspection during their next outage of all Limitorque MOVs in the drywell and the steam tunnel and to remove (if necessary) all the grease relief dust covers.

On May 12, 1988, the licensee called the inspectors stating they had completed walkdown of all EQ MOVs in the drywell and in the steam tunnel during the recent NMP2 outage. They found 6 MOVs in the drywell containing unremoved plastic caps on the grease relief valves. These plastic caps were subsequently removed and the activities documented in the EQ file. The licensee also stated that an engineering evaluation was performed for the qualification of the affected MOVs and documented in the EQ file. The inspectors concluded that this issue is not an immediate safety concern.

This item is unresolved pending NRC review of the engineering evaluation of the qualification of the affected MOVs (50-410/88-08-02).

Response:

As indicated in the NRC report, all safety-related Limitorque Actuators located in the NMP-2 primary containment and steam tunnel were inspected for the presence of temporary dust protection plastic caps on the actuator grease relief valves. A total of six protective covers were found and removed.

Corrective Action

1) Qualification Documentation

Testing has been performed by Wyle Labs of a Limitorque Actuator with a plastic cover over the grease relief valve, as supplied by Limitorque. This actuator was subjected to an accident test. The results were that the grease forced the cap off of the grease relief valve and the grease relief valve operated properly. The Limitorque Actuator evidenced no problems after the exposure to the accident. Evidence of this testing has been placed in the NMP-2 Equipment Qualification file.

2) Justification for Continued Operation (JCO)

In accordance with the guidelines of NRC Generic Letter 88-07 and previous NRC guidance, a Justification for Continued Operation (JCO) has been generated and placed in the Equipment Qualification file to address the period prior to discovery, evaluation and correction of the as-found condition(s).

3) Actions Taken to Prevent Recurrence

Inspection for the presence and removal of the dust cover has been added to the maintenance criteria for NMP-2 Limitorque Preventive Maintenance Procedures N2-EPM-GEN-R520 and N2-EPM-GEN-R521.

ATTACHMENT 2

Clarification of Inspection Report 50-410/88-08 Statements

Statements made in two sections of the Inspection Report are not in accordance with Niagara Mohawk's understanding of their commitments or statements made to the inspectors. These are identified as follows:

1) In Section 5, "Equipment Qualification List (EQL)," page 7, paragraph 2, the statement is made relevant to plant equipment verification walkdowns:

> The walkdowns had not been completed (NMPC estimated 80% complete) at the time of this inspection due to equipment accessibility problems and some equipment with missing nameplates. NMPC was scheduled to complete the walkdowns and verify all equipment not positively identified by nameplate during the outage scheduled to start on May 6, 1988.

Niagara Mohawk did not make this commitment. The walkdowns in question are an equipment reverification effort specifically undertaken by the Niagara Mohawk Equipment Qualification group in addition to the field verification effort already performed by the installation team. The object of this effort was to obtain additional nameplate and location data, which was not documented as part of the original effort work scope. There is no specific requirement for this effort, it is merely an enhancement of the data currently available. We have, as stated, completed about 80% of the task. Completion of this effort was limited by: requirements for scaffolding, inaccessibility due to insulation, etc., ALARA considerations, or location in an inaccessible area. We plan on completing this effort as equipment becomes available, but do not consider this a priority effort and have made no specific commitment for completion. Documentation is in place via installation records and Quality Assurance records, as well as the Equipment Qualification file records, to demonstrate identity of the equipment in question.

2) In Section 15.0, "Licensee's Response to Information Notice 86-53 (Raychem Cable Splices)," page 20, paragraphs 4 and 5, the statements are made relevant to the Niagara Mohawk Raychem Splice inspection program:

> NMPC committed to conduct their own inspection of all Raychem cable splices, immediately for cable splices outside the drywell and during the upcoming outage for cable splices inside the drywell.
>
> Following the inspection, on May 10 and May 16, 1988, the licensee called the inspectors stating that they had completed a walkdown of all Raychem cable splices both inside and outside the drywell.

The Niagara Mohawk commitment was to perform inspection of Raychem splices both inside and outside primary containment on a sampling basis to determine if similar cases of insufficient seal length existed. The commitment was not that all Raychem splices would be inspected.

A random sample of 68 primary containment splices were selected, all of which were well within specification requirements. Accordingly, the sample size was not increased for the primary containment splices. Upon finding additional instances of non-conformance to the installation specification in the outside primary containment splices, the sample size was increased to include all transmitters in the Equipment Qualification program. This does not include all Raychem splices in the plant. The transmitter splices were selected for inspection since any increase of leakage current (due to lower insulation resistance of a splice not in compliance with specifications) could have a significant effect on loop accuracy and, hence, system performance. The result of our inspection/analysis, however, was that the effect of the noted variances was negligible.

The information provided to the inspectors by telecon was that of the primary containment splices inspected, all met the specification requirements; and that 100% of the transmitter splices had been inspected.

We regret any misunderstanding which may have occurred in this regard.

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August 5, 1988
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Attn: Document Control Desk
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IE01
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ATTACHMENT 1

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NINE MILE POINT UNIT 2
DOCKET NO. 50-410
LICENSE NO. NPF-69

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Response

Niagara Mohawk Power Corporation admits to the violation and agrees that three of the inspected splices did not meet the one (1) inch minimum splice to cable overlap referenced in the Electrical Installation Specification (E061A). Although the direction provided by the Equipment Qualification program was correct, there were deviations from this established requirement in the installation which were not identified by the concurrent inspection.

The corrective actions outlined below which address Violation 50-410/88-08-01 also provide the information required for resolution of Unresolved Item 50-410/88-08-03.

Corrective Action

1) Equipment Walkdown/Inspections

As a result of these findings, an inspection of Raychem splices, on a sampling basis, was performed by Niagara Mohawk to determine if similar cases of insufficient seal length existed. Approximately 500 Raychem splices were inspected to verify compliance to manufacturer's and Equipment Qualification requirements. These inspections were performed in accident areas (Loss of Coolant Accident/High Energy Line Break) where steam conditions and temperatures up to 340°F are postulated (in which case the splice overlap criteria is 2 inches), and in areas where the maximum accident temperature is postulated as 200°F (in which case the splice overlap criteria is 1 inch). The inspections were performed jointly by teams made up of Electrical Maintenance and Equipment Qualification Engineering personnel with review of data by Quality Assurance personnel. These inspections addressed all aspects of the installation specification including the overlap criteria.

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Qualification for these as-found conditions has been established as noted below; however, with respect to the 5 instances in which the overlap was found to be 1/2 inch or less and the 5 instances in which only the WCSF-050-N sleeve was used, an additional conservatism was added by wrapping these splices with half-lapped layers of Okonite T-95 tape and Okonite Number 35 jacketing tape. The Okonite taping is not considered part of the Equipment Qualification requirement for these devices, but is a conservatism added to provide additional insulation resistance beyond that already provided by the qualified splice(s).

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This documentation consists of:

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In order to determine the potential impact of the inadequate inspections of the original work, copies of documentation associated with the termination and sealing of the transmitter leads were compiled. A review of this documentation revealed the following:

- Ten <u>different</u> Stone and Webster Field Quality Control inspectors had inspected the Raychem splices subsequently found unsatisfactory.

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4) Justification for Continued Operation (JCO)

In accordance with the guidelines of NRC Generic Letter 88-07 and previous NRC guidance, a Justification for Continued Operation (JCO) has been generated and placed in the Equipment Qualification file to address the period prior to discovery, evaluation and correction of the non-conformance.

5) Actions Taken to Prevent Recurrence

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> On May 12, 1988, the licensee called the inspectors stating they had completed walkdown of all EQ MOVs in the drywell and in the steam tunnel during the recent NMP2 outage. They found 6 MOVs in the drywell containing unremoved plastic caps on the grease relief valves. These plastic caps were subsequently removed and the activities documented in the EQ file. The licensee also stated that an engineering evaluation was performed for the qualification of the affected MOVs and documented in the EQ file. The inspectors concluded that this issue is not an immediate safety concern.

This item is unresolved pending NRC review of the engineering evaluation of the qualification of the affected MOVs (50-410/88-08-02).

Response:

As indicated in the NRC report, all safety-related Limitorque Actuators located in the NMP-2 primary containment and steam tunnel were inspected for the presence of temporary dust protection plastic caps on the actuator grease relief valves. A total of six protective covers were found and removed.

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1) Qualification Documentation

Testing has been performed by Wyle Labs of a Limitorque Actuator with a plastic cover over the grease relief valve, as supplied by Limitorque. This actuator was subjected to an accident test. The results were that the grease forced the cap off of the grease relief valve and the grease relief valve operated properly. The Limitorque Actuator evidenced no problems after the exposure to the accident. Evidence of this testing has been placed in the NMP-2 Equipment Qualification file.

2) Justification for Continued Operation (JCO)

In accordance with the guidelines of NRC Generic Letter 88-07 and previous NRC guidance, a Justification for Continued Operation (JCO) has been generated and placed in the Equipment Qualification file to address the period prior to discovery, evaluation and correction of the as-found condition(s).

3) Actions Taken to Prevent Recurrence

Inspection for the presence and removal of the dust cover has been added to the maintenance criteria for NMP-2 Limitorque Preventive Maintenance Procedures N2-EPM-GEN-R520 and N2-EPM-GEN-R521.

ATTACHMENT 2

Clarification of Inspection Report 50-410/88-08 Statements

Statements made in two sections of the Inspection Report are not in accordance with Niagara Mohawk's understanding of their commitments or statements made to the inspectors. These are identified as follows:

1) In Section 5, "Equipment Qualification List (EQL)," page 7, paragraph 2, the statement is made relevant to plant equipment verification walkdowns:

> The walkdowns had not been completed (NMPC estimated 80% complete) at the time of this inspection due to equipment accessibility problems and some equipment with missing nameplates. NMPC was scheduled to complete the walkdowns and verify all equipment not positively identified by nameplate during the outage scheduled to start on May 6, 1988.

Niagara Mohawk did not make this commitment. The walkdowns in question are an equipment reverification effort specifically undertaken by the Niagara Mohawk Equipment Qualification group in addition to the field verification effort already performed by the installation team. The object of this effort was to obtain additional nameplate and location data, which was not documented as part of the original effort work scope. There is no specific requirement for this effort, it is merely an enhancement of the data currently available. We have, as stated, completed about 80% of the task. Completion of this effort was limited by: requirements for scaffolding, inaccessibility due to insulation, etc., ALARA considerations, or location in an inaccessible area. We plan on completing this effort as equipment becomes available, but do not consider this a priority effort and have made no specific commitment for completion. Documentation is in place via installation records and Quality Assurance records, as well as the Equipment Qualification file records, to demonstrate identity of the equipment in question.

2) In Section 15.0, "Licensee's Response to Information Notice 86-53 (Raychem Cable Splices)," page 20, paragraphs 4 and 5, the statements are made relevant to the Niagara Mohawk Raychem Splice inspection program:

> NMPC committed to conduct their own inspection of all Raychem cable splices, immediately for cable splices outside the drywell and during the upcoming outage for cable splices inside the drywell.
>
> Following the inspection, on May 10 and May 16, 1988, the licensee called the inspectors stating that they had completed a walkdown of all Raychem cable splices both inside and outside the drywell.

The Niagara Mohawk commitment was to perform inspection of Raychem splices both inside and outside primary containment on a sampling basis to determine if similar cases of insufficient seal length existed. The commitment was not that all Raychem splices would be inspected.

A random sample of 68 primary containment splices were selected, all of which were well within specification requirements. Accordingly, the sample size was not increased for the primary containment splices. Upon finding additional instances of non-conformance to the installation specification in the outside primary containment splices, the sample size was increased to include all transmitters in the Equipment Qualification program. This does not include all Raychem splices in the plant. The transmitter splices were selected for inspection since any increase of leakage current (due to lower insulation resistance of a splice not in compliance with specifications) could have a significant effect on loop accuracy and, hence, system performance. The result of our inspection/analysis, however, was that the effect of the noted variances was negligible.

The information provided to the inspectors by telecon was that of the primary containment splices inspected, all met the specification requirements; and that 100% of the transmitter splices had been inspected.

We regret any misunderstanding which may have occurred in this regard.