NIAGARA MOHAWK

NIAGARA MOHAWK POWER CORPORATION/300 ERIE BOULEVARD WEST, SYRACUSE, N.Y. 13202/TELEPHONE (315) 474-1511

May 27, 1986

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 50-220
DPR-63

Dear Dr. Murley:

Your letter of April 17, 1986 transmitted a Notice of Violation resulting from NRC Inspection No. 50-220/85-13 regarding the Environmental Qualification Program at Nine Mile Point Unit 1. The attachment to this letter describes the corrective actions which have been taken and associated results.

During the week of April 14, 1986 members of your staff performed a re-audit of the Environmental Qualification Program. The items of noncompliance/potential enforcement were closed during that audit.

Sincerely,

NIAGARA MOHAWK POWER CORPORATION

C. V. Mangan
Senior Vice President

CVM:svm
Attachment
6202I



IE-01

NINE MILE POINT UNIT 1
RESPONSE TO NOTICE OF VIOLATION
DATED April 17, 1986

1. Violation

Contrary to 50.49(f), during an inspection of sixteen electrical component files on August 19-23, 1985, performance specifications were not defined for four of the 16 files reviewed. Specifically, no plant accuracy requirement was listed for the plant application of the Static-O-Ring Pressure Switch (Pc No. PS-70-279), thermal aging test accuracy for the Rosemount 1151 Transmitter (Pc No. FT-36-06A) was not available, and plant electrical performance for the General Electric EB-5 (SCEW 042) and EB-25 (SCEW 711) Terminal Blocks was not provided.

Response

This violation resulted because of the difficulty that the auditors encountered when reviewing individual files in that the location of pertinent qualification data within the reports was not specifically indexed and in the case of the above-mentioned items, performance/accuracy was not uniformly documented.

We agree that performance/accuracy data was not documented in the file in a consistant manner, however, the systematic review of performance requirements was a key element in determining the qualification of equipment at Nine Mile Point Unit 1. Wyle Equipment Qualification evaluation form documented evaluation of acceptance criteria with respect to its adequacy, in terms of demonstrating the ability of the equipment to perform its required safety function; and in terms of demonstrating that the acceptance criteria are satisfied for all phases of testing. Also, specific acceptance criteria were defined prior to testing performed specifically for Niagara Mohawk. In addition, in some cases, specific performance requirements required additional engineering analysis. For these cases, the applicable analyses were incorporated into the Equipment Qualification file.

Corrective and preventive actions involved enhancing documentation in this area to provide additional objective evidence of its review and inclusion in the Equipment Qualification program. Performance requirements specified in the Equipment Qualification program were reviewed with respect to the documentation relating the performance specifications to the acceptance criteria. In any instance where it was determined that additional data would improve the clarity of this relationship, the records were revised accordingly (Wyle Report 17655-PERF-1, Nuclear Engineering Assessment Report on Performance of Safety Related Equipment at Nine Mile Point Unit #1). We are currently in full compliance with performance/accuracy requirements for all items included in the program.

2. Violation

Contrary to 50.49(d), as of the inspection on August 19-23, 1985, certain electrical equipment which was not requalified did not meet the DOR guidelines, as evidenced by the following examples:

A. The cable entrance seals in the Static-O-Ring Pressure Switch (Pc. No. PS-70-279) and the Valcor Solenoid Valve (Pc. No. SOV-39-14C) were not identical in design and material construction to the test specimen, and these deviations were not evaluated.

B. The file for Fisher Position Switch (Pc. No. 39-11-1LSC) did not establish that the equipment type tested was similar or identical to the installed equipment in that the comparison was based solely on a telephone conversation with a sales representative of the company and not on documented evidence of a technical evaluation. In addition, the file did not contain an engineering evaluation of a complete materials listing to identify materials subject to aging degradation; it contained only a record of a telephone conversation with a different sales representative who provided his opinion concerning materials susceptible to aging degradation.

C. The file for the General Electric EB-5 and EB-25 terminal block did not demonstrate that the performance measured during type testing was representative of the actual application requirements.

D. The file for the Rosemount 1151 Transmitter (File Pc. No. FT-36-06A) did not properly establish qualified life in that the calculation was based on a material not even included in the plant component, and the plant component contained at least one other material subject to greater aging degradation than calculated.

Response

A. Static-O-Rings Pressure Switches and Valcor Solenoid Valves

This violation arose when a walkdown inspection revealed that no conduit seal was used in plant installations, whereas type testing used conduit to seal the cable entrance path. This seal would be required to qualify the device for both a HELB and LOCA condition.

It was unclear from the qualification file whether these items were necessary for both LOCA and HELB environments. Further documentation was provided which indicated that these devices need to be qualified for a LOCA environment only. This requires qualification to a radiation environment only, therefore, no seal is required. Wyle Qualification Reports 17655-PSW-9, 17655-PSW-9.1, 17655-SOV-2 and 17655-SOV-2.1 have been revised to note the changes in service condition. The System Component Evaluation Work Sheets (SCEW's) have also been revised to reflect the change in service condition.

To prevent further recurrence of this type, a check list was developed which documents the accident environment for which the equipment is required to be operational. This check list is incorporated into Procedure NT-100C, "Equipment Qualification". We are currently in full compliance for the specification of service requirements for each individual item in the program.

B. Fisher 304 Limit Switches

This violation resulted because similarity between the test specimen and plant equipment was based entirely on a telephone conversation with a Fisher sales representative who stated that no material changes were made in manufacturing during the time interval in question.

To correct the specific file, a revised materials list has been obtained from the vendor and incorporated in Wyle Qualification Reports 17655-LSW-16 and 17655-LSW-16.1. Qualified life was recalculated/reconfirmed considering the wire insulation, and the Qualification Reports reissued.

No further instances of basing qualification on documentation from sales representatives were found as a result of our file review. Personnel were instructed that this type of documentation isn't allowed. With the preventive and corrective action described above we are currently in full compliance.

C. General Electric EB-5, EB-25 Terminal Blocks

The original terminal block documentation evaluation included the establishment of insulation resistance/leakage current acceptance criteria by Niagara Mohawk Electrical Design Engineering which the auditors considered insufficiently conservative. To substantiate the acceptance criteria, the actions described below were performed.

Terminal block qualification requirements were reviewed with respect to specific requirements within the drywell. It was determined that for the environmental qualification equipment located within the drywell, either the terminal blocks were internal to the device (and qualified with the device), the operating time requirement was limited to one hour, or no terminal blocks existed in the circuitry. Accordingly, the operating time requirement for terminal blocks located inside the drywell was revised from twenty-eight hours to one hour, and the applicable Wyle Qualification Reports were revised (Reports 17655-TB-1 and 17655-TB-1.1 for Type EB-5 Blocks; Report 17655-TB-2 for Type EB-25 Blocks). The type test insulation resistance data for a one hour operating time plus margin was acceptable to the auditors.

For balance of plant equipment, a review of the configuration of plant installed terminal blocks was performed. This consisted of:

1. Plant equipment walkdown inspection of selected terminal boxes and their associated terminal blocks.

2. Interconnection drawing review of the majority of the environmental qualification electrical equipment to determine an optimum test configuration for both EB-5 and EB-25 blocks.

3. Analytical analysis to determine acceptance criteria for the test, and

4. Circuit specific review for operating time considerations

A test program including leakage current considerations was performed to fully test both block types in configurations that simulated worst case field installation usage (e.g. block configurations which combined terminations of transmitters, solenoids and limit switches on a single block).

The results of this test program (Wyle Report 17775-1) confirmed our original evaluation.

D. Rosemount 1151 Transmitters

The violation with respect to this item addresses two points:

1) The violation states that "the file...did not properly establish qualified life in that the calculation was based on a material not even included in the plant component..."

   Qualified life of the 1151 "E" transmitter was calculated on the basis of an activation energy of 0.78eV (that of a wire wound resistor used in the Model 1151 transmitter with "B" electronics. This activation energy was chosen since it is the most limiting of all the parts in both transmitters "E" and "B" with the exception of the Buna-N seals which were separately addressed. (The 1151 "E" contains metal film ceramic resistors with a considerably higher activation energy which would accordingly provide a longer qualified life.)

   The activation energy of 0.78ev was known to be conservative from Patel report PEI-TR-82-12-10 which was part of the audited qualification file for these transmitters, and from Rosemount Report No. 67710A, which is an attachment to the Patel report. The analysis using the 0.78ev activation energy showed the 1151 transmitter with "E" output electronics to have a qualified life of 11.8 years. Since the 1151's without "E" electronics contained resistors with an activation energy of 0.78, and the 1151 with "E" electronics contained resistors with higher activation energies, the use of 0.78 was conservative.

2) The violation further states that "...the plant component contained at least one other material subject to greater aging. degradation than calculated."

   The material being referred to is the Buna-N O-ring. This item is known to be a replacement item and therefore it was addressed separately in both Wyle Report 17655-XMR-2.1 and in Patel Report PEI-TR-82-12-10. In the Patel report, the Buna-N O-ring was shown to have a life of 12.51 years. The Wyle report noted that at the time of this analysis, the ambient temperature requirement for analysis had changed upwards by 1 degree F. Therefore, Wyle recalculated the Buna-N life as 11.85 years. Both Wyle and Patel utilized the same activation energy of 0.75ev and both utilized expected life as the criterion.

It is our belief that the Buna-N O-rings and the wirewound resistors had been properly addressed and that the values of activation energy utilized for the remaining component materials were appropriately conservative.

We have, however, in order to provide additional ease of auditability, reorganized the subject file to individualize the qualification data for the Rosemount 1151 transmitters with "E" output electronics and "B" type electronics respectively, and have eliminated the Patel Report by addressing all pertinent aspects of the qualification within the Wyle Report. Additionally, testing had been performed on these transmitters for Nine Mile Point Unit 1 prior to the August 1985 audit for the purpose of additional extension of O-ring/seal life and modification of torquing requirements. This additional test data has also now been included in the Qualification Report.

We are in full compliance with qualification requirements for this item.