



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

January 7, 1985

Mr. Thomas T. Martin, Director
Division of Engineering and Technical Programs
United States Nuclear Regulatory Commission
Region I
631 Park Avenue
King of Prussia, Pennsylvania 19406

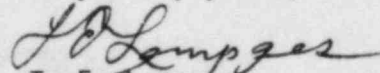
Re: Nine Mile Point Unit 1
Docket No. 50-220
DPR-63

Dear Mr. Martin:

Your letter of December 6, 1984 provided the results of Inspection 84-15 conducted by Mr. K. Manoly of your staff. This inspection covered both the Niagara Mohawk corporate office and Nine Mile Point Unit 1.

The attachment to this letter provides our response relative to your findings.

Very truly yours,


T. E. Lempges
Vice President
Nuclear Generation

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RESPONSE TO
INSPECTION 50-220/84-15

1. Violation (220/84-15/01)

Section 6.8.1 of NMP-1 Technical Specification requires the establishment of written procedures that meet or exceed ANSI 18.7 paragraph 5.1 and 5.3 and Appendix "A" of Regulatory Guide 1.33. Paragraph 5.1.6 of ANSI 18.7 requires that maintenance or modifications be performed in a manner that assures quality equivalent to that specified in applicable codes, standards, design requirements... These procedures should receive the same level of review and approval as operating procedures. The licensee's Engineering Procedure EP-130, describe the methods and requirements for the issuance and control of controlled documents (and revisions thereto). These requirements involve, as a minimum, all controlled documents associated with the items on the Q-List requiring Appendix B to 10CFR50 applicability.

Contrary to the above, the licensee performed inspections and verification of piping supports in response to NRC/IE Bulletin 79-02 using documents that were not issued or controlled in accordance with Engineering Procedure EP-130. Documents used were internal correspondence of April 18 and July 27, 1979 which were used for providing instructions to survey teams performing the walkdown inspection of safety-related pipe supports in response to IEB 79-02. The licensee also performed other design activities in response to IE Bulletin 79-02 and 79-14 using procedures that were not controlled in the prescribed manner: Procedure No. ABPT-1 - proof testing of concrete expansion anchors; Procedure No. SCVP - as-built restraint verification; Procedure No. ABFS-1 - functional specification regarding design requirement to be used in redesigning pipe support base plate affected by IEB 79-02; Procedure ABKB - methods for drilling holes in concrete to accept hilti-kwik bolts; Procedure for repair to concrete expansion anchors noted as minor fixes.

Response

The following corrective action has been taken in response to Inspection 50-220/84-15.

Short Term

Personnel performing engineering activities in Nuclear Engineering or Licensing for Nine Mile Point Unit 1 are required to be trained on a two-year cycle. This training includes engineering procedures. During the current cycle of the training program which began in September 1984, emphasis was placed on adherence to the procedures. It was pointed out as a result of this inspection what the result of noncompliance with the procedures could be. In addition, the Manager, Nuclear Design Engineering, has impressed upon his lead engineers to pass on to their staff the importance of control of a project in accordance with the engineering procedures.

In addition, a project planning and control system is currently being implemented. This will provide for closer control on various phases associated with projects.

Long Term

We are actively pursuing an Engineering Assurance Program at Niagara Mohawk. The intent of the program is to develop a comprehensive system of information and guidance to ensure that modification design, material procurement and installation is performed in accordance with applicable codes and regulations. Implementation will be completed by December 31, 1985.

The Engineering Assurance Program consists of the following major tasks:

- A. System Descriptions
- B. Design Criteria
- C. Standard Specifications
- D. Procedure Revision and Development

A) System Descriptions:

The function of the System Descriptions is to provide the design engineer with definition of system functional, operational and design requirements. This includes the original system design and a history of all modifications and operational changes made to that system. This also includes items such as: applicable codes, standards and regulations, seismic requirements, equipment qualification requirements, functionality, operability and maintainability requirements, references to the design criteria. The System Descriptions summarizes available information and reference where more detailed information can be found, if required.

B. Design Criteria:

The function of the Design Criteria is to provide guidelines for the design engineer regarding design/analysis philosophy and approach. This includes original Nine Mile Point Unit 1 design and current approach to modifications. Items included are: applicable codes, standards and regulations, methods of analysis (ref. Standard Review Plan sections or Regulatory Guides); loading criteria including load combinations, identification tagging of equipment or supports, preferred or standard vendors, references to Standard Specifications, and System Descriptions.

Areas of immediate development are:

- 1) Seismic Criteria (Integrated Safety Assessment Program) and New Modifications
- 2) Cable Routing Criteria (Channelization)
- 3) Control Panels

C. Standard Specifications

The function of the Standard Specifications is to provide accurate, consistent, cost effective performance of design, installation, testing, inspection and procurement functions for items required on a regular basis. These should include items such as: applicable codes, standards and regulations; approved or recommended practices, materials and vendors; and reference the System Descriptions and Design Criteria.

D. Procedure Revision and Development

Engineering Procedures

This task involves the review and revision of existing Engineering Procedures to streamline their intended function, assure consistency in format and content, and to establish an even flow from their usage. Engineering Procedures are considered high level documents of intent to meet 10CFR50 Appendix B criteria. These are concurred with by the Quality Assurance Department as well as Nuclear Engineering.

Engineering Implementing Procedures

The intent of the Engineering Implementing Procedures is to provide specific instructions which, when implemented, will ensure that work performed fulfills the requirements of the existing Engineering Procedures. Engineering Implementing Procedures are considered lower level documents, supplying simple, how-to-do information that provides guidance for performing each task, as well as complying with the Engineering Procedures. The engineering implementing procedures will provide detailed methods to comply with the engineering procedures.

2. Violation (220-84-15/02)

Section 6.8.1 of NMP-1 Technical Specification requires the establishment of written procedures that meet or exceed ANSI 18.7, paragraph 5.1 and 5.3 and Appendix "A" of Regulatory Guide 1.33. Paragraph 5.1.6 of ANSI 18.7 requires that modifications that may affect functioning of safety-related structures, systems, or components be performed in a manner that assures quality equivalent to that specified in applicable codes, bases, standards, design requirements.... The licensee's Engineering Procedure EP-90, delineates the control of design, review and verification to be exercised over the designs and input to the design of structures, systems and components. As stated, the requirements of EP-90 are applicable to all Q-Listed items in DP-020 to which Appendix B to 10CFR50 applies.

Contrary to the above, the licensee performed design activities in response to NRC/IE Bulletin 79-02 without properly documenting references, assumptions, sources of loads and other data such that proper verification could be performed: Design Package No. 3-N2.1-S14, Design Package No. 72-H-29; and Design Package No. 72-H-157.

Response

The response to this violation is the same as that for violation 220/84-15/01.

3. Unresolved Item (220/84-01-02)

This item concerns the apparent inadequate seismic restraint of the core spray piping (system 81) from the inlet side of the RCS pump number 122 to strainer number 81-06. Additional analysis had been performed on this piping system using an incorrect value for seismic acceleration. The licensee is presently performing a reanalysis to demonstrate the seismic qualification of the piping system. This item remains open pending completion of the analysis and NRC review of the results.

Response

The reanalysis has been performed using the seismic design criteria which will be formalized as part of the Engineering Assurance Program. The results show stresses are within code allowables. A summary of the results are shown below.

SUMMARY OF RESULTS

CORE SPRAY PIPING RE-ANALYSIS

<u>ASME EQUATION</u>	<u>HIGHEST STRESSED LOCATION</u>	<u>CALCULATED STRESS</u>	<u>ALLOWABLE STRESS</u>
8 (sustained loads)	Node #270	4,405 psi	15,000 psi
9 (occasional loads)	Node #10	15,476 psi	18,000 psi

4. Unresolved Item (220/84-15-03)

The licensee provided test reports for the plant wide pull testing of concrete expansion anchors. However, sufficient documentation was not provided to clearly demonstrate system by system qualification as required by revision 2 of IEB 79-02, Item 4. Appendix "A" of the bulletin provided two accepted sampling methods that could be used for testing; however, the selection of the testing method was required on a system by system basis.

Response

Inspection and Enforcement Bulletin 79-02, Revisions 1 and 2 provided two (2) sampling methods that could be used for pull testing. The first method was to pull test one bolt per base plate. The second method was to randomly pull test bolts on a system by system basis. These methods are described in detail in Appendix A to that bulletin. Niagara Mohawk stated in both our letters of July 6, 1979 and December 10, 1979 that the first method would be utilized. However, we also indicated in our response that it may not be practical to implement this method on all systems. Reasons for the decreased pull test frequency were provided in our December 10, 1979 letter and include items such as physical inaccessibility and low bolt loadings.

The results of our inspection indicated that only one (1) bolt failed in over 1000 that were tested. The detailed results are shown on Table 4-1. Based on the extremely low failure rate, the decreased pull test frequency is justified.

Table 4-1
SUMMARY OF BOLT PULL TEST
PER IEB 79-02

<u>System (System Number)</u>	<u>Base Plates</u>	<u>Bolts Pull Tested</u>	<u>Failures</u>
Emergency Cooling (05)	46	22	0
CRD System (28)	8	7	0
Feedwater System (29)	36	31	0
Feedwater (30)	12	12	1
Shutdown Cooling (38)	39	28	0
Emergency Cooling (39)	65	43	0
Core Spray (40)	1	1	0
Liquid Poison (42)	10	8	0
CRD (44)	9	9	0
Feedwater (49)	2	2	0
Feedwater (50)	162	123	0
Feedwater (51)	64	53	0
Feedwater (51 1)	12	7	0
CRD (53)	9	9	0
Fuel Pool Cooling (54)	140	107	0
CRD (55)	4	3	0
Condensate Transfer (57)	33	30	0
Core Spray (58)	35	18	0
Condensate Transfer (59)	63	45	0
Emergency Cooling (60)	46	23	0
Vacuum Relief (68)	20	13	0
Reactor Building Closed Loop Cooling (70)	125	58	0
Service Water System (72)	11	10	0
Diesel Gen. Cooling Water (79)	134	109	0
Containment Spray (80)	133	123	0
Core Spray System (81)	109	107	0
Diesel Generator Fuel Oil (82)	10	9	0
Containment Spray Cooling (93)	104	71	0
Instrument Air (94)	15	3	0
Diesel Generator Starting Air (96)	12	10	0
Instrument Air (113)	11	3	0
N ₂ Vent & Purge (201.2)	22	15	0
Drywell Particulate Monitoring (201.7)	2	2	0
N ₂ Supply (201.8)	2	0	0
N ₂ Supply (201.9)	13	8	0
Control Room Vent (210)	8	8	0
Totals	1527	1130	1

5. Unresolved Item (220/84-15-04)

Documented criteria for the seismic design and qualification of safety related piping systems were not available for review. Also, the verbal descriptions offered to the inspector by licensee's technical staff regarding the methods of seismic design employed, were inconsistent. The licensee's Final Safety Analysis Report (FSAR) does not clearly address this topic, and the licensee did not produce documentation defining the criteria used.

Response

As part of the Engineering Assurance Program, a document entitled, "Final Safety Analysis Report Seismic Design Criteria for Safety Related Piping Systems" is currently undergoing management review. Issuance is scheduled for February 1985. Input for this criteria was derived from 1) review of previous analysis, 2) discussion with original designers and 3) Final Safety Analysis general criteria.

6. Unresolved Item (220/84-15-05)

A uniform approach and procedure did not exist for the evaluation of increased concrete expansion anchor loads on piping systems reanalyzed as part of IEB 79-14. The licensee should provide information which clearly shows that all factors of safety related by IEB 79-02 are still satisfied for all cases where support loads may have increased due to IEB 79-14.

Response

Inspection and Enforcement Bulletin 79-02 required a review of the design of pipe support base plates which use concrete expansion anchor bolts. Whereas Inspection and Enforcement Bulletin 79-14 required a review of the seismic adequacy of our safety related piping system by verifying the input parameters to as-built configurations.

In the course of responding to these bulletins, it was necessary to perform field surveys. Each of the bulletins requires different information. As a result, more than one drawing may exist for a given restraint or support. Niagara Mohawk is currently consolidating information associated with each support or restraint such that only one as-built drawing will exist. This program is scheduled to be completed by September 1985, however, verification of restraints inside of the drywell cannot be completed until the end of the 1986 refueling and maintenance outage. Additionally, we are anticipating that Nine Mile Point Unit 1 will be included in the Integrated Safety Assessment Program with the Nuclear Regulatory Commission. In this program safety related piping systems and supports would be modeled using state-of-the-art techniques. This would be used to ensure that factors of safety as defined in Inspection and Enforcement Bulletin 79-02 are still valid.

7. Unresolved Item (220/84-15-06)

The condensate transfer piping system (number 57) between valve number PSV 57-57 at elevation 310'-6" and condensate transfer pump numbers 11 and 12 and the turbine building penetration at elevation 284'-0" does not appear to have adequate seismic support. This is unresolved pending demonstration that the foregoing line is seismically qualified.

Response

Reanalysis of this portion of the condensate transfer piping system has been completed. Preliminary results show that there is adequate seismic support. The analysis is currently being documented with a final report to be completed by February 15, 1985.