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SUBJECT: Forwards response to 920207 rept on effectiveness of licensee activities re performance of safety-related check valves at facility.Followup response will be provided by 930430.

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March 13, 1992
NMP2L 1342

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

Subject: Response to Report of Effectiveness of Licensee Activities Regarding the Performance of Safety-Related Check Valves-Nine Mile Point Nuclear Station, Unit 2 (TAC NO. M81189)

Gentlemen:

Attached is Niagara Mohawk Power Corporation's Response to the subject report dated February 7, 1992.

Niagara Mohawk was also asked to include with the response a copy of the approved administrative program document for the check valve program. This document is currently being developed and is scheduled to be completed by July 31, 1992. Niagara Mohawk will forward it to you within 30 days of completion. The details regarding this issue are discussed within the response.

Niagara Mohawk will provide a follow-up response thirty days after the last open item is completed, i.e by April 30, 1993.

If you have any questions concerning this response, please contact me at (315) 428-7449.

Very truly yours,

Carl D. Terry
Vice President
Nuclear Engineering

MJJ/mls
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RESPONSE TO REPORT OF AUDIT OF EFFECTIVENESS OF LICENSEE ACTIVITIES REGARDING THE PERFORMANCE OF SAFETY-RELATED CHECK VALVES-NINE MILE POINT NUCLEAR STATION, UNIT 2 (TAC NO. M81189)

INTRODUCTION

An audit of the Nine Mile Point Unit 2 (NMP2) check valve program was performed on August 5 through August 9, 1991. The audit report, dated February 7, 1992, contained a number of specific issues which were summarized in Section 14. The specific concerns identified by this report are provided below with their appropriate responses.

NMPC has been actively resolving many of the concerns raised. The remaining concerns will be addressed within the schedules designated in the response below.

NRC CONCERN A:

The formulation used to prioritize Check Valve Program valves leads to the exclusion of some valves important to safety, as well as those of a type most susceptible to service-induced degradation. Based on the audit team's concerns, the licensee committed to revise the formulation. (Sections 1 and 4)

NMPC RESPONSE:

The prioritization was developed utilizing EPRI guidance, and was established by assignment of weighted values. These values were the product of a formula designed to integrate "active" and "passive" valve criteria.

The NRC's observation was that the "active" parameters of flow, disturbance, and orientation could allow a value of zero to be assigned for valves that have an ideal design condition. This could result in a zero multiplier within the formula and cause valves (safety-related valves were of particular concern) to be dropped from the prioritization without some of the "passive", but important, criteria being applied.

The formula has been reconfigured so that "active" and "passive" criteria interrelate more appropriately. The following is a summary of changes to the formula parameters:

- The lowest minimum value for the above-referenced "active" parameters is "1". This ensures that all valves with significant "passive" criteria (including safety-related valves) are evaluated for prioritization.

- The "passive" parameter, "Safety", has been given a greater weight. This is intended to assign more

importance to safety-related valves regardless of "active" parameter considerations.

- A second "History" parameter has been added which is intended for use in reflecting industry check valve experience.

A revised valve prioritization has been prepared and the results incorporated by revision into the Check Valve Program Plan. The revised prioritization resulted in the addition of twenty-two valves to the Plan, of which seventeen are safety-related.

NRC CONCERN B:

The development of the Check Valve Program without an overall administrative program document approved by management was considered a weakness. This document was still in the process of preparation at the time of the NRC audit. (Section 3)

NMPC RESPONSE:

NMPC's program for assuring check valve reliability at NMP2 is the "Check Valve Program Plan", document number NMP2-CV-001, Rev. 1. This Plan, a) provides a mechanism for implementing the recommendations of vendors, utility groups, and other industry groups, b) is a framework for defining the scope of valves to be monitored, and c) delineates the roles, duties and interaction of responsible parties. The Program Plan incorporates, by reference, NMPC Internal Correspondence which document the basis of the check valve scope and prioritization performed by the Nuclear Mechanical Design Group.

The Check Valve Program Plan is implemented by the Technical Support-IST and Mechanical Maintenance organizations. The activities and interfacing of these groups is controlled by the implementing procedure N2-TDP-400, "Check Valve Reliability Program". Check Valve Inspection requirements for disassembly and inspection are given in procedure N1-MAP-SAT-0101, "Check Valve Inspection." For non-intrusive testing, the requirements are given in procedure S-TTP-CKS-001, "Check Valve Non-Intrusive Testing." Recommendations for changes to the valve prioritization, based on trending and expanded sampling, are evaluated by the Nuclear Technology Services-Program Development and Nuclear Engineering-Mechanical Design groups and the Program Plan is amended as appropriate.

NMPC has recognized the need to provide a singular overall process for developing/controlling the "Check Valve Program" and other similar programs that obtain/evaluate data to ensure continued operation of the units within design limits (Design Assurance Program). The Nuclear Division administrative procedures are currently being updated. A governing hierarchy of procedures is being written, approved, and implemented. This hierarchy will include this consolidated process.

Specifically, the current draft of Nuclear Interfacing Procedure (NIP) NIP-DES-01, "Design Control", includes requirements for establishing programs such as the check valve program. Implementation requirements will be documented in a Nuclear Engineering Procedure (NEP). Once the NIP and NEP are issued, the Check Valve Program Plan will be issued and controlled in accordance with these overall administrative requirements. This is scheduled to be completed by July 31, 1992.

NRC CONCERN C:

Although current management support and involvement in check valve activities is evident, the delays in implementing the Check Valve Program, lack of an overall program guidance document, and continuing problems with Clow check valves in the Service Water System indicate that this support and involvement were not as timely and aggressive as it should have been. (Section 6)

NMPC RESPONSE:

The issue regarding the lack of an overall program guidance document has been addressed under the response to "NRC Concern B".

Recognizing that there may have been a delay in implementing this program, the responsibility for screening industry information has been assigned to Quality Assurance/Operations Experience (QA/OE). QA/OE reviews all industry events including INPO SER's and SOER's and NRC Information Notices for applicability to the Nine Mile Site. Generally, this review is completed within five days. If the information is applicable to the Nine Mile Site, then QA/OE initiates a Deviation/Event Report (DER) in accordance with NDD-ECA, "Evaluation and Corrective Action," for implementation. A priority and a schedule for implementation is then determined.

The problems with the service water check valves were discussed with the NRC Senior Resident Inspector on December 13, 1991, as unresolved item 91-17-03. Issues with the service water check valves were addressed using NMPC's DER process. There is a plan and schedule in place to inspect and correct, as necessary, 2SWP*V1A through V1F by the end of 1992. The remaining valves, 2SWP*V1027, V1028, V1029, V202A, and V202B, are scheduled to be inspected by the end of the fourth refueling outage.

The DER process which has replaced the use of Problem Reports (PR) is currently utilized to address such problems. This process includes management controls to preclude delays in addressing such issues. After a DER is initiated, the Plant Manager assigns it a priority and forwards it to the responsible organization for evaluation and disposition. Senior Management remains involved throughout the DER process, including the oversight of established schedules and any existing backlog. This facilitates the timely response to important issues.

NRC CONCERN D:

Procedure N2-OSP-RHS-Q0040 did not have appropriate acceptance criteria. (Section 6)

NMPC RESPONSE:

The Residual Heat Removal System (RHS) procedure with this criterion was revised to contain the appropriate acceptance criterion of 100 psig for the valve pair, 2RHS*V47 and 2RHS*V48.

NRC CONCERN E:

Where practical, the acceptance criteria in test procedures that assess reverse flow closure should be more objective or quantifiable. (Section 6)

NMPC RESPONSE:

NMP2 is in compliance with GL-89-04, "Guidance on Developing Acceptable Inservice Testing Programs". The verification of a Category "C" valve in the closed position is satisfied by visual observation, by an electrical signal initiated by a position-indicating device, by observation of appropriate pressure indication in the system, by leak testing, or by other positive means. The current practice of observing little or no flow from upstream vents or drains for some check valves in the IST program satisfies the exercising requirement of IWV-3522 and confirms the disc is on its seat per IWV-3522A without classifying the test as a leak rate test.

However, check valve reverse flow acceptance criteria and test methods that incorporate "little or no flow" terminology will be evaluated by Nuclear Engineering to further ensure appropriate testing is performed. This activity will be completed by September 15, 1992.

NRC CONCERN F:

Some valves included in the IST program may not be subject to the preventative maintenance requirements of the Check Valve Program. (Section 6)

NMPC RESPONSE:

Based on the discussions between the audit team and NMPC personnel, the NRC audit team had concluded that the basis for not including the eleven check valves discussed was acceptable. This was also stated in Section 6 of the audit report on page 11, second paragraph.

NRC CONCERN G:

Due to the unique inverted installation of certain diesel generator starting air system check valves, current testing may not verify their capability to perform their safety function under all accident conditions. The audit team concluded that additional justification of the testing methodology should be provided to ensure proper diesel generator starting capability under all postulated failure mechanisms. (Section 6)

NMPC RESPONSE:

Nuclear Engineering is currently evaluating the capability of these valves to perform their safety function under all accident conditions. This evaluation is scheduled to be completed prior to restart from the current refueling outage.

NRC CONCERN H:

Valves that perform a vacuum breaker function are being tested once every 10 years per ANSI/ASME OM-1. These valves are constructed identically to check valves and have the same degradation mechanisms. The audit team requested the licensee to evaluate the testing frequency for these vacuum breakers and determine if the testing is sufficient to verify their operational readiness. (Section 6)

NMPC RESPONSE:

The two RCIC valves, 2ICS*V39 and 2ICS*V40, are spring-loaded relief devices and have a set point acceptance criteria of 0.5 psid. Although construction is identical, the addition of set point criteria requires the valves to be tested to OM-1 requirements.

This clearly falls within the scope of OM-1, which requires testing a minimum of 20% of the valves from each valve group within 48 months and that each valve shall be tested at least once every ten years.

NMP2 presently exceeds the Code ANSI/ASME OM-1 test requirements and tests one of the two valves every refueling outage. Nuclear Engineering has determined that NMP2's present testing adequately verifies the operability of these two valves.

NRC CONCERN I:

The audit team found that the Technical Support and Maintenance organizations had not upgraded check valve maintenance procedures to make them specific to different style check valves. This was observed to be a key factor in the lack of a data base that could be used to provide meaningful data for trending. The team observed that the use of procedure N2-NMP-GEN-216 for mechanical

maintenance on Velan check valves does not result in the differentiation of deficiencies between various valve sizes and types. (Section 7)

NMPC RESPONSE:

N2-MAP-SAT-0101, "Check Valve Inspection", provides guidelines for inspection of the internal condition of check valves identified in the Check Valve Program Plan. This procedure addresses the differentiation of deficiencies between various valve sizes and types. N2-MAP-SAT-0101 has been issued to trend information gathered from corrective maintenance as well as program inspections. QA/OE provides information to the Nuclear Division regarding industry events on an on-going basis through the use of the DER process. This information is incorporated, as required, in the programs.

N2-NMP-GEN-216, "Maintenance and Repair of Velan Bolted Bonnet Gate, Globe, Swing Check Valves - 2 1/2"-24"," is a procedure that provides information to perform corrective maintenance rather than provide inspection criteria.

NRC CONCERN J:

The audit team concluded that improvements in current trending activities should be considered. Evidence of strong trending activities was not observed by the team. (Section 8)

NMPC RESPONSE:

A DER, 2-91-Q-0262, entitled "Check Valve Failures" was initiated by QA/OE. This DER resulted from a review of applicable industry documents. The dispositioning of this DER resulted in several action items, described below regarding the trending of check valves.

The Nuclear Plant Reliability Data System (NPRDS) Program Coordinator will forward NPRDS data for check valves to NMP-2 Check Valve Program Manager, Technology Services for evaluation on an annual basis. The Maintenance Department will forward maintenance history for check valves to NMP-2 Check Valve Program Manager, Technology Services on an annual basis.

NMP-2 Check Valve Program Manager, Technology Services will evaluate this data for trending and applicability for inclusion into appropriate Surveillance Programs and/or initiate corrective actions, as necessary, on an annual basis. NMP-2 Nuclear Division will provide supporting analyses when required by the Check Valve Program Manager. If required, updates to the NMP2 Check Valve Program Plan, NMP2-CV-001, will be issued annually.

Currently to increase trending data, QA/OE is reviewing closed work requests for repeat maintenance on the same components. A DER is written for components which have three or more failures. QA/OE will continue this review until the above actions are fully implemented.

NRC CONCERN K:

Weaknesses were observed in the training program for personnel performing check valve maintenance. Training materials including related procedures were general and did not provide detailed information. (Section 12)

NMPC RESPONSE:

The lesson plan on basic valves, MM-204, will be revised prior to the next scheduled class which is currently planned for November, 1992. The revised lesson plan will include disassembly, inspection reassembly and troubleshooting. Additionally, hands-on laboratory training will be used to promote knowledge and understanding.

Training on specific manufacturer's types of valves, such as Clow or Anchor Darling, will be developed in response to requests from the Maintenance Departments of each unit. NMPC has purchased an Anchor-Darling 900# testable check valve estimated to be delivered in September, 1992. This training is scheduled for development by March 31, 1993.

NMPC has previously invited manufacturer's training representatives to provide training to maintenance personnel. Anchor-Darling has provided training on the basics of their valves. Dexter has also provided training on check valve reseating.

NRC CONCERN:

The program lacked a means of benchmarking the non-intrusive test (NIT) results against disassembly and inspection (D-I) observations and measurements, especially since the NIT methodology was not firmly developed and the process to be used had not yet been selected by the licensee. (Section 3, page 6, second paragraph)

NMPC RESPONSE:

NMPC has generated an administrative procedure N2-TDP-400, "Check Valve Reliability Program", which directs the benchmarking of NIT results. Check valves within the program plan have been grouped for similarity by such criteria as size, design configuration, and manufacturer. NIT will be performed on more than one valve in a group to allow for test result comparison. Out of each group the valve that is considered to be the worst performer will

be selected for D-I during the next outage. The subsequent D-I will be used to validate the NIT performed.