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December 23, 1992

Docket No. 50-336
B14326

Mr. Thomas T. Martin, Regional Administrator
U.S. Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406

Dear Mr. Martin:

Millstone Nuclear Power Station, Unit No. 2
Operability and Reportability of Motor-Operated Valves

INTRODUCTION

Northeast Nuclear Energy Company (NNECO) has established conservative and comprehensive processes regarding reportability and operability issues. Indeed, the NRC Staff has acknowledged our improving performance in these areas. We intend to maintain high standards of performance in the application of evolving NRC guidance and industry understanding of operability/reportability expectations.

In light of our significant efforts on the operability/reportability process, we were concerned when a question arose regarding that process. The question related to two Millstone Unit No. 2 power-operated relief valve (PORV) block valves in our Generic Letter 89-10 motor-operated valve (MOV) program. We believe a review of our operability/reportability process and its application in the context of the Generic Letter 89-10 efforts would confirm that it is a strong program that has been responsibly implemented.

Accordingly, to address the question which apparently arose, we would like to provide NNECO's intentions regarding our operability and reportability process, including its application to the Generic Letter 89-10 program. We also will discuss the application of that process in the context of the two PORV block valves.

DISCUSSION

NNECO Operability/Reportability Processes

In recent times, NNECO has been at the forefront of NRC and industry efforts to establish and implement appropriate operability and reportability processes. NNECO diligently follows and seeks to incorporate evolving NRC guidance in these important areas. NNECO wholeheartedly supports two

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fundamental principles behind the reporting and operability processes, namely, to assure that licensees continue to provide reasonable assurance of the protection of the public health and safety, and to facilitate timely NRC Staff confirmation that such reasonable assurance continues to be provided.

NRC activities in these areas have evolved over the last few years. In 1990 the Staff sponsored several workshops to receive public input regarding the reporting process. Subsequently, the Staff undertook to revise its reporting guidance in NUREG-1022.(1) NNECO actively participated in these efforts, recognizing that Staff views would be incorporated into our reporting process, as appropriate.

Our philosophy is to enhance our program whenever appropriate. We have significantly enhanced our reporting process based on these developments, including revision of procedures, issuance of our own guidance document, and additional training of key personnel.

Regarding the consideration of operability questions, many Staff memoranda and other informal guidance has been generated on this subject over the last few years. Most significantly, with the issuance of Generic Letter 91-18 in November 1991,(2) the Staff formally expressed its views regarding the consideration of operability questions. That document has served as the basis for enhancement to NNECO's operability processes.

NNECO has enhanced its operability procedure not only to reflect more precisely the NRC Staff views formally expressed in Generic Letter 91-18, but also information derived from the NRC-sponsored workshop on operability conducted in April 1992.

We believe that the above demonstrates NNECO's desire to remain at the forefront of NRC and industry efforts to enhance the operability and reportability determination processes.

NRC Assessments of NNECO Reportability and Operability Processes

NRC reviews of NNECO processes for reportability and operability have been recently favorable. While there have been instances in the past where improvement in the implementation of those processes was warranted, and while NNECO remains vigilant in seeking to identify such areas on its own, we are comfortable with the processes as they now stand.

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(1) Draft Revision 1 to NUREG-1022, "Event Reporting Systems 10 CFR 50.72 and 50.73," was issued for public comment on October 7, 1991.

(2) "Information to Licensees Regarding Two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability," Generic Letter 91-18, November 7, 1991.

Detailed NRC assessments of these programs generally agree with our own assessment. For instance, in the recent Final SALP Report for Millstone Station, the Staff observed that with respect to operability and reportability decision-making, NNECO's "process has been found to be prompt, conservative and soundly based."[3] Additionally, during a review of the program for performing operability and reportability determinations, the Staff noted that "an improving trend was observed in the quality and timeliness of resolutions of safety problems" through those programs.[4]

Operability Considerations in the Generic Letter 89-10 Process

As with any comprehensive program designed to assess systems, structures or components against new standards and methodologies, occasions may arise in which a question is presented regarding the ability of the affected system, structure, or component to satisfy the new standards. This may occur despite full and complete satisfaction of prior acceptance standards. When such a question arises, it is the licensee's responsibility to assess its implications, including both reporting obligations and operability concerns. Our program instituted in response to Generic Letter 89-10 is no exception.

In Supplement 1 to Generic Letter 89-10,[5] the NRC Staff recognizes that operability and reportability questions might arise in the conduct of those programs. However, this supplement did not impose specific criteria with respect to operability or reportability. Rather, the comments indicate that an actual safety problem must exist, and if the licensee determines that a valve will not operate under design basis conditions then it must be declared inoperable.[6] One fundamental element of this guidance is the reasoned expectation that licensees will make operability determinations based on

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(3) Letter from T. T. Martin (NRC) to J. F. Opeka (NNECO), "Systematic Assessment of Licensee Performance (SALP) Final Report Nos. 50-245/90-99, 50-336/90-99, and 50-423/90-99" dated August 4, 1992, at p. 22.

(4) Letter from E. C. Wenzinger (NRC) to J. F. Opeka (NNECO), "Haddam Neck Inspection 91-18," January 31, 1992, at p. 1.

(5) "Supplement 1 to Generic Letter 89-10: Results of the Public Workshops," June 13, 1990, Enclosed Summary of "Results" at p. 37.

(6) For instance, in response to Question 44 in Supplement 1, it is noted the "if a safety problem is identified,...[or] if a licensee believes that an MOV would not have operated under design-basis conditions,...the licensee must comply with [reportability and operability requirements]." (Id. at p. 37.) In addition, in response to Question 48, it is noted that "if a licensee finds that an MOV...will not operate under design-basis conditions [or] ... if an MOV is determined to be incapable of operating under design-basis conditions, the MOV will be declared inoperable." (Id. at p. 40.)

actual findings and determinations, and not on hypothetical questions. Specifically, it is not tied to whether enhancements can improve valve performance -- but on actual conditions assessing a valve's capabilities to fulfill its design basis requirements.

NNECO recognizes the need to respond to operability questions that may arise during the implementation of the Generic Letter 89-10 MOV program. NNECO initially contemplated establishing a separate procedure to govern the evaluation of MOV operability issues. However, further evaluation has led to the conclusion that the more appropriate avenue is to utilize existing processes.[7] This decision was based on the determination that utilization of proven, existing processes in coordination with the MOV program provides a more efficient, reliable and consistent mechanism for addressing a particular matter than would the development of a new process. In addition, it provides a proven vehicle to capture, in the MOV program, more explicit NRC expectations and guidance regarding operability as set forth in Generic Letter 91-18, than the general considerations noted in Generic Letter 89-10. Accordingly, the Motor Operated Valve Program Manual, to be issued in final form shortly, refers to NEO 2.25 for evaluation of operability/reportability questions that may arise.

Consideration of PORV Block Valve Operability

With respect to the specific process and conclusions related to the Millstone Unit No. 2 PORV block valve operability/reportability evaluation (REF), NNECO acted reasonably and responsibly by reaching a conservative conclusion regarding the appropriateness of initiating an operability determination. NNECO believes that the application of the process to these valves was fully consistent with NRC guidance and corporate processes.

It is noted that at the time the REF process was initiated, there remained a reasonable level of confidence in the operability of these valves. Not only had these valves been tested in connection with NNECO's response to NUREG-0737, Item II.D.1 as recently as 1988, but the valve's status had been reevaluated when Generic Letter 89-10 was issued to reverify their operability prior to implementation of the Generic Letter 89-10 process.[8] This reevaluation was specifically referenced in the subject REF (discussed below) as a basis for continued assurance of operability pending completion of the operability determination.

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(7) Nuclear Engineering and Operations Procedure, NEO 2.25, "Operability and Reportability Determinations (10CFR50.72, 10CFR50.73, and 10CFR50.9)."

(8) E. J. Mroczka (NNECO) letter to NRC, "Millstone Nuclear Power Station, Unit No. 2, Relief Valve and Safety Valve Testing (Tac. No. 44594)," dated April 20, 1988 (NUREG-0737 Item II.D.1 closure for these valves). Additionally, see REF 89-53 (MP2) "MOV Operability," completed January 16, 1990.

In addition, you should be aware that the operability evaluation conducted in support of REF #92-47 has been completed (prior to the conclusion of the Unit 2 outage). That evaluation again confirmed the continued operability of the subject valves.[9] We recognize that the focus of the question that seems to have arisen concerns the initiation of that operability process. Accordingly, the discussion which follows should assist in understanding the facts and circumstances that impacted the consideration of operability of these two valves.

Of primary importance to an understanding of this particular situation is to recognize the nature of the calculations which gave rise to the initiation of the evaluation process. Those calculations were initiated to generally assess valve performance under limiting conditions, to provide target thrust windows to support diagnostic testing during the current Millstone Unit No. 2 outage, to provide additional assurance of adequate thrust and set-up margin, and to recommend hardware modifications, if appropriate. While these calculations were premised on many conservative assumptions concerning valve parameters (e.g., differential pressure, line pressure and undervoltage), it was generally recognized that those assumptions, while reasonable and appropriate to assess the valves for the above purposes, would not necessarily provide a realistic prediction of valve performance under design basis conditions. This is due to the "bounding" nature of these calculations. For example, while these calculations indicated potentially insufficient thrust values for some valves, it was recognized that the differential pressures, line pressures, and undervoltage assumptions were quite conservative. As with almost any engineering issue, work can cease if an acceptable conclusion is reached with conservative and bounding inputs. If such a conclusion is not immediately reached, some of the margins can then be removed to ascertain whether one arrives at an acceptable end result.

NNECO believes that the above factors are important in that they highlight certain fundamental questions that arise when any information is identified which might potentially implicate operability. Specifically, these are the questions of when does information related to the performance of a structure, system or component attain sufficient validity in the first instance to justify initiating a formal operability review and ultimately when may it serve as a basis for making an operability determination.[10] In our view,

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(9) REF #92-47 (Millstone 2), completed December 1, 1992, concluding that the identified condition was not reportable, relying in principle part on the determination of continued operability of the two PORV block valves.

(10) This very question was one of the principal questions to come out of the recent Operability Workshop and to which the NRC indicated it would pursue development of further guidance. See letter to Licensees titled "Summary of NRC Region I Operability/Degraded Conditions Workshop," dated June 11, 1992.

the answers to these questions are, naturally, ones that must be pursued based on a conservative, yet reasonable understanding of the circumstances. They require reasoned engineering judgement by experienced and knowledgeable individuals and/or teams.[11]

In April 1992, during the ongoing development and review of actuator limiting conditions which could affect target thrust windows (used to adjust valves during testing), the effect of an undervoltage study completed on March 24, 1992, was considered. The application of the revised undervoltage criteria for the PORV block valves to previously satisfactory target thrust calculations indicated that, assuming all other calculation inputs were correct, there could be circumstances in which the valves may not function properly. Preliminary (i.e., unverified in accordance with 10 CFR Part 50, Appendix B provisions) vendor-performed calculations received on April 24, 1992, also indicated a potential problem. As a result of an engineering review of these inputs, an operability/reportability evaluation was requested on May 7, 1992. Thus, the operability/reportability review process was requested even prior to receipt of the final, verified, vendor calculation package on May 14, 1992.

It is important to recognize that earlier target thrust calculations and the vendor calculations were not considered to demonstrate conclusively that a safety problem existed. Experience had shown that much of the input and assumptions in these calculations were unnecessarily conservative. We are confident that had there been a firm basis to believe that a safety problem existed with an apparent adverse impact on plant safety, this process would have been immediately expedited consistent with the significance.

At that point, corporate procedures called for a determination as to whether a formal operability/reportability evaluation was warranted. This determination is ultimately made by the unit director, following consultation with Nuclear Licensing. Following the request for an REF, several discussions were held between licensing, corporate, and site engineering personnel to verify that the information provided and the process to be undertaken was consistent with the intent of existing corporate procedures as well as the draft MOV operability guidance document discussed above. Additionally, consistent with

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(11) We identify this point because we should not lose sight of it in assessing, often at a later time, the decision-making processes related to the evaluation of the myriad of technical input used to answer engineering questions that arise every day. The ultimate consideration in every case is, of course, the safe operation of the plant and the protection of the public health and safety. In each instance, however, fulfillment of that obligation must be premised on responsible and informed decisions. It is often too easy to take preliminary information in isolation and leap to conclusions that are not, given adequate information, justified. NNECO believes these considerations are consistent with NRC guidance regarding operability.

those procedures, a further assessment of the status of the valves and the appropriateness of certain key assumptions of the calculations were discussed and reviewed. Again, throughout this process, unit personnel were aware of the matters being discussed.

Nevertheless, following the discussions noted above, a conservative path was chosen on June 13, 1992, and a formal operability/reportability evaluation was initiated. It was judged that this mechanism, as authorized by the unit director, would serve to provide a means whereby the assumptions used in the vendor calculations could be formally addressed and modified, as appropriate.

The basis for continued assurance of operability remained the evaluations that had been performed and referenced in the initial scoping efforts for Generic Letter 89-10. It is important to note that work on the MOV's and the review of the vendor calculations continued from the time the REF was initiated, through and beyond the time several weeks later, when the unit director formally confirmed the request for a detailed evaluation. This was a conservative and prudent practice. We also note that this work continued independent of the initiation of the refueling and steam generator replacement outage.[12]

The subsequent operability determination was a comprehensive review which documented additional bases for maintaining reasonable assurance of the operability of those valves. Of course, as the evaluation proceeded in accordance with the applicable procedure, there remained throughout reasonable assurance that the valves were capable of performing their intended safety functions under design basis conditions. (We note that within a few weeks of initiating the operability determination, a recalculation of the vendor information using more appropriate assumptions, confirmed the absence of a potential safety problem.) Thus, as is typical, at each step in the operability determination the level of assurance of operability was increasing. As mentioned earlier, the fact that the plant was operating for a portion of the evaluation and shutdown for the remainder of the evaluation had no bearing on the decision to conduct a thorough evaluation.

CONCLUSION

In view of the above information, NNECO believes that the operability determination process with respect to these two block valves was conducted in a manner consistent with existing NU procedures and NRC requirements and guidance. Throughout that process there remained reasonable assurance in the operability of those valves.

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(12) Also during this outage, reflecting NNECO's conservative approach to these issues, the gear ratio of the subject valves was modified. This modification served to enhance further our assurance of valve operability.

In closing, we remain confident in the adequacy of our reporting and operability processes and its application to the Generic Letter 89-10 program. While we acknowledge that the NRC did not specifically request this information, we thought it might be helpful in facilitating your awareness of some of the details surrounding the application of both our MOV program, and our operability/reportability process to one set of circumstances. If there are any questions concerning the information contained within this submittal, we would be pleased to address them.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

J. F. Opeka
Executive Vice President

cc: T. T. Martin, Region I Administrator
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