

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION
Frank J. Miraglia, Acting Director

In the Matter of)	Docket No. 50-245
)	
NORTHEAST NUCLEAR ENERGY COMPANY)	License No. DPR-21
)	
(Millstone Nuclear Power Station, Unit 1))	(10 CFR 2.206)

DIRECTOR'S DECISION UNDER 10 CFR 2.206

I. INTRODUCTION

On December 30, 1994, Mr. Anthony J. Ross (Petitioner) filed a Petition with the Executive Director for Operations of the Nuclear Regulatory Commission (NRC) pursuant to Section 2.206 of Title 10 of the Code of Federal Regulations (10 CFR 2.206). In the Petition, the Petitioner asserted that (1) inadequate work control and procedure compliance exist at Millstone Unit 1, as evidenced by the use of standard commercial-grade lugs in a gas turbine fuel forwarding pump and motor that are quality assurance (QA)¹ subsystems of the emergency gas turbine generator and which had apparently been crimped using diagonal pliers; improper Raychem splices, cable bend radius, and connections in the connection boxes of major safety-related QA equipment; and non-QA lugs installed, and improperly performed crimping, in fire protection quality assurance (FPQA) emergency lights, and (2) he had been

¹ Quality Assurance comprises those quality assurance actions related to the physical characteristics of a material, structure, component, or system which provide a means to control the quality of the material, structure, component, or system to predetermined requirements.

subjected to ridicule by the gas turbine system engineer for raising concerns regarding the lugs on the gas turbine fuel forwarding pump and motor and that the system engineer willfully violated 10 CFR 50.5 and 50.7.

The Petitioner requested that the NRC (1) require Northeast Utilities (NU) to review all existing work orders for the past 10 or 12 years, with NRC oversight, to ensure that QA motor and connection work does not have certain deficiencies; (2) assess a Severity Level I violation against NU and its managers for apparent violations of 10 CFR 50.7 and a Severity Level III violation against the gas turbine system engineer at Millstone for his apparent violation of 10 CFR 50.7 and NU's "Code of Conduct and Ethics;" and (3) institute sanctions against the system engineer and NU and its managers for engaging in deliberate misconduct in violation of 10 CFR 50.5.

By letter dated February 23, 1995, the NRC informed the Petitioner that the Petition had been referred to the Office of Nuclear Reactor Regulation pursuant to 10 CFR 2.206 of the Commission's regulations. The NRC also informed the Petitioner that the staff would take appropriate action within a reasonable time regarding the specific concerns raised in the Petition. On the basis of a review of the issues raised by the Petitioner as discussed below, I have concluded that the actions sought by the Petitioner are not warranted.

II. DISCUSSION

A. Inadequate Work Control and Procedural Compliance Issues

The issues raised by the Petitioner regarding the improper crimping and use of commercial grade lugs in the gas turbine fuel forwarding pump and motor; improper Raychem splices, cable bend radius, and connection issues, and

improper crimping and use of non-QA lugs in emergency lighting, have been addressed in correspondence between the NRC and NNECO, and have been the subject of evaluations by NNECO and an NRC inspection. Specifically, by letters dated December 5 and 28, 1994, and February 14, 1995, and during a phone conversation on December 15, 1994, the NRC raised these issues and requested NNECO to submit written responses. By letters dated March 6 and April 26, 1995, NNECO responded to these requests and submitted information regarding its evaluation of these issues. On May 15 through June 21, 1995, the NRC conducted a special safety inspection, which focused on these and other maintenance issues. The inspection findings are contained in Inspection Report (IR) 50-245/95-22, 50-336/95-22, 50-423/95-22 (IR 95-22), dated July 21, 1995. Finally, NNECO provided further information regarding these issues in its August 31, 1995, response to the Petition. A broad summary of the resolution of these issues is set forth below.

1. Gas Turbine Fuel Forwarding Pump and Motor Issues

The Petitioner asserts that the licensee inadequately controls work and procedural compliance at Millstone, as evidenced by the use of standard commercial-grade lugs (instead of QA lugs) in a gas turbine fuel forwarding pump and motor that are QA subsystems of the emergency gas turbine generator and which the Petitioner asserts had been crimped with diagonal pliers (instead of the proper crimping tool). In its response to the Petition dated August 31, 1995, NNECO stated that, when the supervisor examined the lugs in question, he concluded that although the lugs were somewhat discolored as a result of age, and may have had an indented crimp, they appeared to the supervisor to be the type of lug that had been installed in the 1971-1972 time-frame, when no procedures were in place with respect to the type of lug

required or the method of crimping. NNECO further stated that these lugs are considered acceptable where they have already been installed (i.e., meet original electrical standards); however, when maintenance is performed requiring re-lugging, the lugs are upgraded and installed in accordance with current procedures.

NNECO further stated that the fact that the lugs in question were commercial grade and may have been crimped with diagonal pliers is not indicative of a work control or procedural compliance problem. The lugs appeared to the NNECO supervisor to be the type of lug that had been installed at or near the time of initial plant start-up in accordance with the appropriate electrical standards that existed at that time. Moreover, once the concern was raised about the proper type and crimping of the lugs by the Petitioner, NNECO took prompt action by initiating a work order to replace all the lugs.

The NRC staff discussed the issue of defective lugs with the maintenance department manager and the worker who replaced the lugs during the special safety inspection. Neither individual could remember the work in detail but stated that to ensure reliability, the lugs were replaced.

Based on NNECO's conclusion that (1) the lugs in question had been installed in the 1971-1972 time-frame when no procedures were in place with respect to the type of lug required or the method of crimping, (2) these lugs are considered acceptable where installed, and based on NNECO's prompt action to initiate a work order and replace all the lugs, the NRC concludes that this issue does not indicate an inadequate work control or procedural compliance problem.

2. Improper Raychem Splices, Cable Bend Radius, and Connection Issues

The Petitioner asserts that the licensee is inadequately controlling work and procedural compliance at Millstone, as evidenced by improper Raychem splices, cable bend radius, and connections in the connection boxes of major safety-related QA equipment (low pressure coolant injection (LPCI) and core spray (CS) pumps). In its letter dated April 26, 1995, NNECO informed the NRC that an operability determination had been completed on the issue of the Raychem splice installation, and whether Raychem splice bend radii on the LPCI and CS pumps were less than the recommended limits (five times the Raychem diameter). The operability determination concluded that the motor splices were operable and that an immediate inspection to verify bend radii was not warranted. In addition, NNECO stated that 50 percent of the Raychem splices on the LPCI and CS pump motors had been inspected at that time with no problems identified. In its followup letter dated August 31, 1995, NNECO stated that a visual inspection of all the LPCI and CS pump motors had been completed and none of the connections exceeded the minimum bend radius. Further, NNECO did not identify any discrepancies in the connection boxes for the LPCI and CS pump motors. NNECO's evaluations validated the determination that the splices are operable.²

As a result of its evaluation of NNECO's response and supporting documentation and its independent verification of two of the pump motors in

² In addition, NNECO (1) performed a review of all the work orders for the current Raychem splice installation and verified that the procedure specified that a minimum bend radius of five times the Raychem diameter not be exceeded, (2) verified that the training the electricians receive on Raychem splices discusses the requirement of not exceeding five times the minimum bend radius, and (3) requested that Raychem determine what the consequences of exceeding the minimum bend radius would be. The results of the Raychem testing showed that even if one or more splices exceeded the minimum bend radius, a tighter bend radius was acceptable.

question, the NRC found NNECO's response acceptable and that no further NRC review was needed. Therefore, the NRC staff concludes that the Raychem splices, cable bend radius, and the connections in the connection boxes of major safety-related equipment (LPCI and CS motors) are acceptable.

3. Emergency Lighting Issue

The Petitioner asserts that the licensee does not adequately control work and procedure compliance at Millstone, as evidenced by non-QA lugs and improperly performed crimping in FPQA emergency lights. The NRC staff requested NNECO to review the use of improper lugs for emergency lighting at Millstone Unit 1. Specifically, the NRC requested NNECO to review the concern that all four lugs on emergency light unit (ELU) 1-ELU-21 had Thomas and Betts lugs (non-QA) rather than the required QA AMP lugs, and all four lugs were not crimped properly. In addition, the NRC staff asked NNECO to review the concern that one lug on the emergency light 1-ELU-29 was a Thomas and Betts lug and that three of the four lugs were not properly crimped.

NNECO responded that a review of the revision history for Procedure MP 790.2, "Emergency Light Inspection," determined that the procedure made no reference to a specific lug prior to April 1993. NNECO stated that because the safety classification of these ELUs is FPQA, the lugs utilized in the ELUs must be FPQA. NNECO noted that Thomas and Betts lugs are only stocked as FPQA.

NNECO stated further that an evaluation was performed to determine the consequences of Thomas and Betts lugs in lieu of AMP lugs and to determine if all lug crimps on 1-ELU-21 and 29 were adequate. Additionally, NNECO's evaluation verified the ability of 1-ELU-21 and 29 to perform their design function. NNECO has determined that the lug manufacturer is not a critical

issue as long as the lug is compatible with the battery terminal and the wire used. In this case, the Thomas and Betts lug is similar to the AMP lug, and both lugs are compatible with the battery terminals and wire used. A compatibility study has been completed and documented in a Replacement Item Evaluation (RIE).

NNECO performed a review of previous ELU surveillances to determine whether a degraded condition had been observed for the battery terminal lugs in these ELUs; this review did not reveal any degraded conditions. The Millstone Unit 1 Engineering Department inspected the crimping of the battery terminations, and the eight crimps were found to be adequate. Although all battery termination lugs are insulated on these ELUs, one splice on 1-ELU-29 appeared to be crimped by a die for noninsulated lugs. However, this crimp did not affect operability of the ELU since a high-resistance connection was not present, and the insulation was not damaged. Satisfactory completion of a battery discharge test confirmed the adequacy of the crimps. Nonetheless, the lug that appeared to be crimped by a die for noninsulated lugs on 1-ELU-29 has been replaced.

During its special inspection, the NRC staff reviewed the concern about emergency lighting lugs and NNECO's process for lug replacement. The NRC staff verified that specific lugs were not called for in earlier versions of the lug replacement procedure and, therefore, as long as the lug was compatible and classified as FPQA, it could be used. Since Thomas and Betts lugs are stocked as FPQA and are compatible, they could have been used in ELUs. In addition, since AMP lugs are stocked as non-QA, the plant staff would have had to fill out Form SF 486, "Upgrading FPQA Parts," to justify the upgrade of the lugs to FPQA standards.

The NRC staff reviewed an example of a lug changeout with an AMP lug and verified that Form SF 486 was included in the package to properly document the upgrade.

The NRC staff reviewed the RIE form that documented the acceptability of Thomas and Betts lugs as an alternate for AMP lugs. The RIE indicated that the Thomas and Betts lugs are acceptable as an alternate item and that they will not degrade or compromise the original design basis. The NRC staff found the RIE to be properly documented and adequate. The NRC staff reviewed procedure MP 790.2, which was revised on April 12, 1995, and now requires that AMP lugs be used or an equivalent as evaluated and indicated by an RIE. Since an RIE has been completed documenting Thomas and Betts lugs as an alternative, they are acceptable. The NRC staff found the procedure adequate and also verified that the one questionable lug on 1-ELU-29 was replaced. The NRC staff concluded that the lugs on 1-ELU-21 and 29 were adequately designed and qualified and that the ELUs were fully operable.

Based on NRC's findings that (1) the use of standard commercial-grade lugs in a gas turbine fuel forwarding pump and motor that are QA subsystems of the emergency gas turbine generator and which had apparently been crimped with diagonal pliers does not constitute an inadequate work control or procedural compliance problem; (2) the Raychem splices, cable bend radius, and the connections in the connection boxes of major safety-related equipment (LPCI and CS motors) are operable; and (3) the lugs on 1-ELU-21 and 29 were adequately designed and qualified and the ELUs were fully operable, the NRC staff has determined that the licensee adequately controls work and procedure compliance within these areas at Millstone. Therefore, the Petitioner's request to require NU to review all existing work orders for the past 10 or 12

years, with NRC oversight, to ensure that QA motor and connection work does not have certain deficiencies, is not warranted.

B. Harassment and Intimidation Issue

The Petitioner alleges that he was ridiculed by the gas turbine system engineer for raising safety concerns regarding the lugs on the gas turbine fuel forwarding pump and motor and that the system engineer willfully violated 10 CFR 50.5 and 50.7. In addition, the Petitioner alleges that NU and its managers violated 10 CFR 50.5 and 50.7 and NU's "Code of Conduct and Ethics."

As indicated in a letter to the Petitioner dated November 28, 1995, from the Deputy Executive Director for Nuclear Reactor Regulation, Regional Operations and Research, the Petitioner has raised several complaints since 1993 with the NRC or the Department of Labor (DOL) concerning harassment, intimidation, or discrimination by individuals at NU because the Petitioner raised safety concerns to NU or the NRC. As explained in the letter, the NRC conducted investigations into some of the harassment and intimidation allegations that the Petitioner had raised. The NRC did not substantiate that the Petitioner suffered discrimination for raising safety concerns. Further, of the complaints of harassment and intimidation that the Petitioner raised that were investigated by the DOL, none have been substantiated.

The staff has, in addition, reviewed the Petitioner's remaining allegations of harassment and intimidation, including those in the Petition, and has concluded that they do not present sufficient information warranting further investigatory effort. Accordingly, absent a finding of discrimination by the Secretary of Labor or an Administrative Law Judge on any pending complaints, or significant new evidence from the Petitioner that would support the allegations that NU has harassed, intimidated, or discriminated against

him, the NRC staff plans no further followup of the harassment and intimidation complaints. Based on the above, no further action is warranted.

III. CONCLUSION

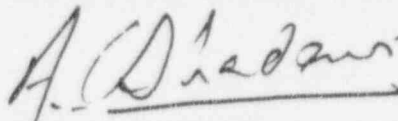
The licensee evaluated the technical issues and provided the results to the staff for review. The staff also conducted inspections to independently determine if the licensee's conclusions and corrective actions were acceptable. As explained above, none of the technical issues reflect a lack of procedural compliance or warrant additional action by the staff. Also, as explained above, the Petitioner's assertion of harassment and intimidation does not warrant any action.

On the basis of the above assessment, I have concluded that no issues have been raised regarding Millstone Unit 1 that would require initiation of enforcement action. Therefore, no enforcement action is being taken in this matter.

The Petitioner's request for action pursuant to 10 CFR 2.206 is denied. As provided in 10 CFR 2.206(c), a copy of this Decision will be filed with the Secretary of the Commission for the Commission's review. This Decision will constitute the final action of the Commission 25 days after issuance unless the Commission, on its own motion, institutes review of the Decision in that time.

Dated at Rockville, Maryland, this 31st day of October 1996.

FOR THE NUCLEAR REGULATORY COMMISSION



Ashok C. Thadani, Acting Director
Office of Nuclear Reactor Regulation