



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, DC 20555 - 0001**

February 10, 2004

Mr. Aron Seiken, President
Nuclear Logistics, Inc.
7450 Whitehall St
Fort Worth, Texas 76118

SUBJECT: NRC INSPECTION REPORT 99901298/03-201

Dear Mr. Seiken:

This letter addresses the U.S. Nuclear Regulatory Commission (NRC) inspection of the Nuclear Logistics, Inc., (NLI) facility at Fort Worth, Texas, conducted on December 9-10, 2003, by Bill Rogers and Stephen Alexander of the Office of Nuclear Reactor Regulation. Mr. Rogers held an exit meeting and discussed his conclusions with you and other members on your staff at the conclusion of the inspection.

Areas examined during the inspection are discussed in the enclosed report. This inspection consisted of an examination of procedures and representative records, interviews with personnel, and observations by the inspectors. The inspectors identified a weakness in the NLI dedication process when it was determined that NLI had not documented a required equivalency evaluation in accordance with NLI procedures, but it was further determined that no safety concern existed. The NRC inspectors concluded that the NLI dedication activities reviewed were adequate and no findings were identified.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be placed in the NRC's Public Document Room (PDR).

Sincerely,

/RA Dale Thatcher for/

Theodore R. Quay, Chief
Emergency Preparedness and Plant Support Branch
Division of Inspection Program Management
Office of Nuclear Reactor Regulation

Docket No: 99901298

Enclosure: Inspection Report 99901298/03-201

February 10, 2004

Mr. Aron Seiken, President
Nuclear Logistics, Inc.
7450 Whitehall St
Fort Worth, Texas 76118

SUBJECT: NRC INSPECTION REPORT 99901298/03-201

Dear Mr. Seiken:

This letter addresses the U.S. Nuclear Regulatory Commission (NRC) inspection of the Nuclear Logistics, Inc., (NLI) facility at Fort Worth, Texas, conducted on December 9-10, 2003, by Bill Rogers and Stephen Alexander of the Office of Nuclear Reactor Regulation. Mr. Rogers held an exit meeting and discussed his conclusions with you and other members on your staff at the conclusion of the inspection.

Areas examined during the inspection are discussed in the enclosed report. This inspection consisted of an examination of procedures and representative records, interviews with personnel, and observations by the inspectors. The inspectors identified a weakness in the NLI dedication process when it was determined that NLI had not documented a required equivalency evaluation in accordance with NLI procedures, but it was further determined that no safety concern existed. The NRC inspectors concluded that the NLI dedication activities reviewed were adequate and no findings were identified.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be placed in the NRC's Public Document Room (PDR).

Sincerely,
/RA Dale Thatcher for/
Theodore R. Quay, Chief
Emergency Preparedness and Plant Support Branch
Division of Inspection Program Management
Office of Nuclear Reactor Regulation

Docket No: 99901298

Enclosure: Inspection Report 99901298/03-201

Distribution:
PUBLIC

Central Files/Docket File No. 99901298
DOCDESK (elec. file)

DISK/DOCUMENT NAME: C:\ORPCheckout\FileNET\ML040440214.wpd * See prev. concurrence(s)

OFC	QMS:DIPM	SC:QMS:DIPM	BC:IEPB:DIPM		
NAME	BHRogers	DFThatcher	TRQuay		
DATE	2/10/04	2/10/04	2/10/04		

OFFICIAL RECORD COPY

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION

Report No: 99901298/03-201

Organization: Nuclear Logistics, Inc.

Contact: Archie Bell
Vice President, Quality Assurance

Nuclear Activity: Performs the design, manufacture, qualification, commercial-grade dedication and supply of safety-related components and replacement parts to NRC Licensees.

Dates: December 9 - December 10, 2003

Inspectors: Bill Rogers, Reactor Engineer
Stephen Alexander, Reactor Engineer

Approved by: Dale Thatcher, Chief */RA/*
Quality and Maintenance Section
Emergency Preparedness and Plant Support Branch
Division of Inspection Program Management

ENCLOSURE

1 **INSPECTION SUMMARY**

On December 9 through December 10, 2003, the U.S. Nuclear Regulatory Commission (NRC) performed an inspection at the Nuclear Logistics, Inc., (NLI) facility in Fort Worth, Texas.

The inspection was conducted to review selected portions of NLI's quality assurance (QA) program, and its implementation, and the applicable programs and procedures used to qualify, dedicate and supply safety-related components and replacement parts to NRC licensees. The focus of the inspection was electric motors.

The inspection bases were:

- 10 CFR Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants."
- 10 CFR Part 21, "Reporting of Defects and Noncompliance."

2 **STATUS OF PREVIOUS INSPECTION FINDINGS**

2.1 No previous inspection findings were reviewed.

3 **INSPECTION FINDINGS AND OTHER COMMENTS**

3.1 Review of Nuclear Logistics, Inc.'s, Program for the Dedication of Commercial Grade Electric Motors for Safety-Related Applications

a. Inspection Scope

The inspectors reviewed the procedures and examples of implementation of the NLI program for the dedication of commercial grade electric motors for safety-related applications. In order to evaluate the quality and technical adequacy of NLI dedication procedures and practices with regard to electric motors, the inspectors reviewed selected dedication packages that had been completed within the last two years. The packages selected for review included AC induction motors of both low and medium horsepower, small capacitive-start and shaded-pole AC motors, and DC motors. In addition, the inspectors examined test specimens and test equipment, interviewed personnel and observed activities in progress.

The NLI dedication documents were reviewed for technical adequacy in accordance with NLI technical procedures and customer specifications. Both the NLI documents and the customer specifications were reviewed with regard to the following:

- (1) the principal motor-specific industry technical standards, Institute of Electrical and Electronic Engineers (IEEE) Standard 112-199 and National Electrical Manufacturers Association (NEMA) Standard Publication MG1-1989,
- (2) the applicable industry guidance on commercial-grade dedication, Electric Power Research Institute (EPRI) Reports NP-5652 and NP-6406, and EPRI Joint Utility Task Group (JUTG) Technical Evaluation (TE) CGIM001, and
- (3) NRC positions on commercial-grade dedication as promulgated in Generic Letters 89-02 and 91-05.

In addition, because of the specific plant applications of some of the selected motors, their critical characteristics included seismic qualification or seismic equivalence evaluation as appropriate. In such cases the seismic aspects of the dedications were reviewed against applicable NRC requirements.

Finally, NLI documentation and practices were reviewed for compliance with the following:

- (1) quality assurance (QA) requirements of the NLI QA Manual and applicable QA procedures,
- (2) customer QA requirements (including 10 CFR Part 50, Appendix B) and
- (3) the QA guidance of American Society of Mechanical Engineers (ASME) Standard NQA-1 (NRC endorsed by Regulatory Guide 1.28).

3.1.1 **Westinghouse, 350-hp Squirrel-Cage AC Induction Motor, NLI Job No. 060032**

a. Observations and Findings

The dedication plan developed by NLI for this order was based on NLI standard practices and the customer specification, Carolina Power and Light (CP&L) Specification CPL-HBR2-E-020, revision 2. The motor was dedicated for use in CP&L's H.B. Robinson Steam Electric Plant, Unit 2, as a spare motor for the auxiliary feed water pumps AFW-A and AFW-B. Review of the files included the report of a recent (June 23 through June 27, 2003) audit by a Nuclear Procurement Issues Committee (NUPIC) joint utility audit team led by Exelon Nuclear (western division).

The NUPIC audit report indicated that while the dedication was generally satisfactory, certain tests and inspections that were not performed, would have provided additional assurance of long-term reliability, beyond the functional performance demonstrated by the testing that was performed. These tests and

inspections, as cited in the audit report, included motor disassembly [bearing inspection], inductive balance of coils, balance of load currents, bearing clearance checks, core loss testing, rotor cage electrical testing and loaded rotor bar analysis. The inspectors noted that these additional tests and inspections were not prescribed by the principal reference for the customer specification, Technical Evaluation (TE) CGIM001 prepared by the Joint Utility Task Group (JUTG) of the Electric Power Research Institute (EPRI).

In addition, the inspectors noted that certain other tests were not performed, including measurement of the rotor-stator air gap, determination of shaft circulating current and/or bearing electrical insulation. Measurement of shaft circulating current and bearing insulation integrity were also not prescribed by CGIM001, but are prescribed in the applicable industry standard, IEEE Std 112.

As a part of NLI standard practice and in addition to the requirements of CGIM001 or CPL-HBR-2-E-020, revision 2, NLI had (as part of its standard practice and as prescribed by IEEE Standard 112) measured the noise output from the motor and determined its overall temperature rise and temperature rise of bearings and the stator at service factor. NLI had also checked for balance of load current as prescribed by its own test plan. NLI did not perform a bearing inspection (also discussed in the NUPIC report); however, the inspectors noted that this was not prescribed by NLI procedures, the customer specification, CGIM001, or the industry standards. NLI stated that neither they nor the customer felt that bearing inspection was essential for this new motor because bearing temperatures were monitored with satisfactory results. After discussion with the inspectors, NLI agreed that the use of oil analysis to check for excessive bearing babbitt material in the oil after the rigorous testing would be an enhancement to their practice and would help establish the bearings' post-testing condition prior to shipment to the customer's facility.

The inspectors determined that the general guidance in EPRI JUTG TE CGIM001, while adequate for use in the dedication of the motor, could be improved if it addressed the additional dedication activities cited above and explained under which circumstances these activities would be recommended for acceptance of new motors and which circumstances these activities would be recommended for the acceptance of rewind motors.

Review of additional correspondence, including an Exelon letter to NLI, dated December 11, 2003, indicated that the specific findings in the NUPIC audit were related largely to documentation discrepancies and were satisfactorily addressed by NLI's response to the NUPIC auditor.

b. Conclusion

Based upon the examination of procedures and representative records, interviews with personnel, and observations by the inspectors, the inspectors concluded that the dedication prescribed by CP&L and performed by NLI was acceptable for a new motor direct from the factory.

3.1.2 Trane 1½-hp AC Motor NLI Job No. 151-007

a. Observations and Findings

The motor was dedicated by NLI for purchase by the Tennessee Valley Authority for use in Trane Chillers. The dedication of the motor had been based upon the earlier seismic qualification, QR-021021-1, revision 4, of a motor with Magnetek/Trane label identification, however, the motor being dedicated displayed A.O. Smith/Trane label identification. Review of the purchase order and discussion with NLI indicated that subsequent to the original qualification, A.O. Smith had purchased the Magnetek line of Trane motors.

Attachment D to the purchase order, "Vendor Data," presented an A.O. Smith company history which indicated that in 1999, A.O. Smith had acquired the worldwide electric motor operations of Magnetek, Inc. Attachment E, "Other Data," documented an NLI review of the motor being dedicated and indicated that it met the fit, form and function of motor which had been originally qualified and that the motor being dedicated had been installed on the test specimen to ensure proper fit-up and function.

Discussion with NLI indicated that the motor, individually, is a seismically rugged item and that the qualification report was for the entire chiller, not just the motor. The critical characteristics for the motor were the weight, mounting configuration, and electrical connections. These critical characteristics had been determined to be the same as those for the original motor and therefore the seismic qualification of the chiller, as performed with the original motor, was still applicable.

The inspectors noted that NLI-PROC-4, "Purchase Order Documentation File," stated in the section titled "Traceability Evaluation" that equivalency evaluations were to be performed in accordance with NLI-TECH-04, "Materials Engineering." NLI-TECH-4, Section 3.1.1, "Requirements," required that an equivalency evaluation be performed for a change of documentation (which the inspectors determined encompassed a company name change). Figure 3.1 of NLI-TECH-4 provided a format for the equivalency evaluation and Section 4.2, "Quality Records," indicated that the equivalency evaluation was to be documented as a quality record.

b. Conclusion

The inspectors concluded that NLI-PROC-4 and NLI-TECH-04 required an equivalency evaluation for documentation changes and did not allow the exemption from a formal equivalency evaluation for small rugged items which had been originally seismically qualified. Although NLI had documented adequate justification for use of the original qualification in its purchase order documentation it had not documented an equivalency evaluation in accordance with NLI procedures. This was determined to be a weakness in the NLI dedication process. However, based on a review of the applicable information and

discussion with NLI management and technical staff it was concluded that no safety concern existed.

4 CONCLUSION

Based upon the examination of procedures and representative records, interviews with personnel, and observations by the inspectors, the NRC inspectors concluded that the NLI dedication activities reviewed for electric motors were adequate and no findings were identified.

5 PERSONS CONTACTED

Aron Seiken, President NLI
Archie Bell, Vice President, Quality Assurance NLI
Victor Lara, Project Engineer NLI