July 3, 2012

Mr. Aron Seiken, President
Nuclear Logistics, Inc.
7410 Pebble Drive
Fort Worth, TX 76118

SUBJECT: NRC INSPECTION REPORT NO. 99901298/2012-201 AND NOTICE OF NONCONFORMANCE

Dear Mr. Seiken:

From June 4 to June 8, 2012, the U.S. Nuclear Regulatory Commission (NRC) conducted an inspection at the Nuclear Logistics, Inc. (NLI) facility in Fort Worth, TX, and at the Nemko Dallas USA, Inc. facility in Lewisville, TX. The purpose of the limited-scope inspection was to assess NLI's compliance with the provisions of selected portions of Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities." Additionally, the inspection assessed conformance to Regulatory Guide 1.180, "Guidelines for Evaluating Electromagnetic and Radio-Frequency Interference in Safety-Related Instrumentation and Control Systems," Revision 1, issued October 2003, as committed to in the AP1000 Design Control Document, Tier 2, Revision 19.

This inspection specifically evaluated NLI's oversight of Nemko's implementation of quality activities associated with electromagnetic interference/radio-frequency interference testing and the procurement of associated testing services for the Westinghouse JE52 Class 1E pressure transmitters and the JE61 Class 1E magnetic actuated float level transmitters. The enclosed report presents the results of the inspection. This NRC inspection report does not constitute NRC endorsement of your overall quality assurance (QA) program.

During this inspection, NRC inspectors found that implementation of your QA program failed to meet certain NRC requirements contractually imposed on you by your customers or NRC licensees. Specifically, the inspection team determined that NLI was not implementing aspects of its design control program consistent with regulatory requirements. The specific findings and references to the pertinent requirements are identified in the enclosures to this letter. In the response to the enclosed notice of nonconformance (NON), NLI should document the results of the extent of condition and determine if there are any effects on other AP1000 components or safety-related testing activities.

Please provide a written explanation or statement within 30 days of this letter in accordance with the instructions specified in the enclosed NON. We will consider extending the response time if you show good cause for us to do so.

In accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding," of the NRC's Rules of Practice, a copy of this letter, its enclosures, and your response will be made available electronically for public inspection in the NRC Public Document Room or from

the NRC's document system, Agencywide Documents Access and Management System accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request that such material is withheld from public disclosure, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21, "Protection of Safeguards Information: Performance Requirements."

Sincerely,

/RA/

Richard A. Rasmussen, Chief
Electrical Vendor Branch
Division of Construction Inspection
and Operational Programs
Office of New Reactors

Docket No.: 99901298

Enclosures:
1. Notice of Nonconformance
2. Inspection Report 99901298/2012-201

accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request that such material is withheld from public disclosure, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21, "Protection of Safeguards Information: Performance Requirements."

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Richard A. Rasmussen, Chief
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Enclosures:
1. Notice of Nonconformance
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ADAMS Accession No.: ML12179A375 *Concurred via email **NRC-001**

OFFICE	NRO/DCIP/CEVB	NRO/DCIP/CEVB	NRO/DCIP/CEVB	NRO/DCIP/CAEB
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DATE	06/27/2012	07/02/2012	07/02/2012	07/02/2012/
OFFICE	NRO/DCIP/CEVB			
NAME	RRasmussen			
DATE	07/03/2012			

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NOTICE OF NONCONFORMANCE

Nuclear Logistics, Inc.
7410 Pebble Drive
Fort Worth, TX 76118

Docket Number 99901298
Inspection Report No. 99901298/2012-201

Based on the results of a U.S. Nuclear Regulatory Commission (NRC) inspection conducted on June 4–8, 2012, of activities performed at Nuclear Logistics, Inc. (NLI) facility in Fort Worth, TX, and the Nemko Dallas USA Inc. facility in Lewisville, TX, it appears that certain activities were not conducted in accordance with NRC requirements that were contractually imposed upon NLI by your customers or by NRC licensees.

A. Criterion III, "Design Control," of Appendix B to Title 10 of the *Code of Federal Regulation* (10 CFR) Part 50 states, in part, that, "Measures shall also be established for the selection and review for suitability of application of materials, parts, equipment, and processes that are essential to the safety-related functions of the structures, systems, and components."

   Section 3.2 of NLI-TECH-03, "Commercial Grade Item Dedication," Revision 14, dated May 7, 2012, states, in part, that "A vendor commercial grade survey is performed to evaluate the process controls, material control, testing and other critical characteristics that are identified in the dedication plan" and Section 2.1.4 states, in part, that "The critical characteristics that are selected will provide "reasonable assurance" that the item will perform its safety function".

   Contrary to the above, as of June 8, 2012, NLI failed to establish adequate measures for the selection and review for suitability of application of materials, parts, equipment, and processes that are essential to the safety-related functions of the structures, systems, and components to dedicate the services that commercial lab Nemko was requested to do via a purchase order. Specifically, NLI did not identify or verify critical characteristics in their commercial grade dedication of Nemko that would ensure that Nemko would have the capabilities necessary to perform the requirements of the electromagnetic interference (EMI)/radio-frequency interference (RFI) standards requested through NLI's purchase order.

   This issue has been identified as Nonconformance 99901298/2012-201-01.

B. Criterion III, "Design Control," of Appendix B to 10 CFR Part 50 states, in part, that, "Design control measures shall provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program" and that "Design changes, including field changes, shall be subject to design control measures commensurate with those applied to the original design and be approved by the organization that performed the original design unless the applicant designates another responsible organization."

   Section 7.2 of QP-05215515-1, "Qualification Plan For Trane Adaptiview Chiller Controls", Revision 2, dated April 2012, states, in part, that "Any modifications made to the test specimens during the testing sequence will be fully documented and evaluated. The impact on the qualification of each specimen will be determined."

Section 4.2 of NLI-TECH-05, "Equipment Qualification Procedure," Revision 11, dated June 5, 2008, states, in part, that "When an anomaly results in the modification of production units that will be supplied to the client, a separate Discrepancy Report will be prepared to track the modifications to the production units."

Contrary to the above, as of June 8, 2012, NLI failed to establish adequate design control measures for verifying or checking the adequacy of design and failed to establish adequate design control measures commensurate with those applied to the original design for the evaluation of modifications done during the qualification process on the Trane Adaptiview Chiller Control system. Specifically, NLI failed to create a discrepancy report and perform an evaluation to determine whether modifications made during the EMI/RFI qualification testing of the Trane Adaptiview Chiller Control system impacted the original design requirements.

This issue has been identified as Nonconformance 99901298/2012-201-02.

Please provide a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Chief, Electrical Vendor Branch, Division of Construction Inspection and Operational Programs, Office of New Reactors, within 30 days of the date of the letter transmitting this Notice of Nonconformance. This reply should be clearly marked as a "Reply to a Notice of Nonconformance" and should include for each noncompliance: (1) the reason for the noncompliance, or if contested, the basis for disputing the noncompliance; (2) the corrective steps that have been taken and the results achieved; (3) the corrective steps that will be taken to avoid noncompliances; and (4) the date when your corrective action will be completed. Where good cause is shown, the NRC will consider extending the response time.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system, Agencywide Documents Access and Management System, which is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html, to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21, "Protection of Safeguards Information: Performance Requirements."

Dated this 3rd day of July 2012.

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF NEW REACTORS
DIVISION OF CONSTRUCTION INSPECTION AND OPERATIONAL PROGRAMS
VENDOR INSPECTION REPORT

Docket No.:	99901298
Report No.:	99901298/2012-201
Vendor:	Nuclear Logistics, Inc. 7410 Pebble Drive Fort Worth, TX 76118
Vendor Contact:	Mr. Aron Seiken President Phone: 817-284-0077 Aron.Seiken@nuclearlogistics.com
Background:	Nuclear Logistics, Inc. is a provider of Environmental Qualifications (EQ) services that specializes in replacement of obsolete equipment and supplies a broad range of electrical, mechanical, and Instruments and control (I&C) products.
Inspection Dates:	June 4–8, 2012
Inspection Team Leader:	Eugene Huang, NRO/DCIP/CEVB
Inspectors:	George Lipscomb, NRO/DCIP/CEVB Shavon Edmonds, NRO/DCIP/CEVB
Approved by:	Richard A. Rasmussen, Chief Electrical Vendor Branch Division of Construction Inspection and Operational Programs Office of New Reactors

EXECUTIVE SUMMARY

Nuclear Logistics, Inc.
99901298/2012-201

The U.S. Nuclear Regulatory Commission (NRC) conducted this vendor inspection to verify aspects of Nuclear Logistics, Inc. (NLI) implementation of their quality assurance (QA) program as required by Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities." The NRC inspection team also assessed activities that NLI performed to meet the AP1000 certified design commitment to Regulatory Guide (RG) 1.180, "Guidelines for Evaluating Electromagnetic and Radio-Frequency Interference in Safety-Related Instrumentation and Control Systems," Revision 1, issued October 2003, and its referenced standards, military standard (MIL-STD)-461E, "Requirements for the Control of Electromagnetic Interference Characteristics of Subsystems and Equipment," and the International Electrotechnical Commission (IEC) 61000 series for equipment electromagnetic emissions and susceptibility.

This inspection specifically evaluated NLI's implementation of quality activities associated with electromagnetic interference/radio frequency interference (EMI/RFI) qualification testing of Westinghouse AP1000 JE52 Class 1E pressure transmitters and the JE61 Class 1E magnetic actuated float level transmitters and the procurement of associated testing services from subcontractor Nemko Dallas USA Inc. The JE52 Class 1E transmitters are safety-related used to monitor various plant conditions such as, reactor coolant system (RCS) pressure and wide and narrow range containment pressure. The JE62 Class 1E transmitters are also safety-related and are used to monitor core makeup tank (CMT) levels and containment floodup (CFU) levels. This inspection was conducted at NLI's facility in Fort Worth, TX and Nemko's facility in Lewisville, TX.

The following regulations served as the bases for this NRC inspection:

- Appendix B to 10 CFR Part 50
- Regulatory Guide 1.180

The inspectors used Inspection Procedure (IP) 43002, "Routine Inspections of Nuclear Vendors," dated April 25, 2011, and IP 43004, "Inspection of Commercial-Grade Dedication Programs," dated April 25, 2011.

No other NRC inspections of NLI have occurred in the last 5 years.

The results of this inspection are summarized below.

Procurement

Based on the sample of procurement documents reviewed, the NRC inspection team determined that NLI's commercial procurement process for EMI/RFI test specimens and testing services for Westinghouse AP1000 Ametek Statham transmitters satisfy the regulatory requirements set forth in Appendix B to 10 CFR Part 50.

Test Software

The NRC inspection team determined that the TILE Software V&V/Dedication Report appropriately outlined the NLI controls placed on the software and provided sufficient documentation of the NLI evaluation of TILE for use in EMI/RFI qualification testing by Nemko. Based on the limited sample of documentation reviewed and NLI oversight activities observed, the NRC inspection team determined that NLI's software quality controls for Westinghouse AP1000 Ametek Statham transmitters satisfy the regulatory requirements set forth in Appendix B to 10 CFR Part 50.

Commercial Grade Dedication

The NRC inspection team issued Nonconformance 99901298/2012-201-01 associated with NLI's failure to implement the regulatory requirements of Criterion III, "Design Control," of Appendix B to 10 CFR Part 50. Specifically, NLI failed to dedicate the requested testing services of Nemko. A commercial grade survey alone is insufficient in accordance with Generic Letter 89-02. Additionally, NLI did not identify or verify critical characteristics associated with MIL-STD-461E and the applicable IEC 61000 tests in the commercial grade survey.

Nonconformances and Test Anomalies

The NRC inspection team issued Nonconformance 99901298/2012-201-02 associated with NLI's failure to implement the regulatory requirements of Criterion III, "Design Control," of Appendix B to 10 CFR Part 50. Specifically, NLI failed to evaluate modifications during the qualification process to the Trane Adaptiview Chiller Control system to ensure that the changes to the equipment did not negatively impact the original design requirements. With the exception of Nonconformance 99901298/2012-201-02, the NRC inspection team determined that NLI is implementing its policies and procedures associated with the control of nonconformances and test anomalies.

Technical Requirements

Based on the observed tests and sample of calibration records reviewed, the NRC inspection team determined that the EMI/RFI testing for the JE52 transmitters conformed to the requirements of Regulatory Guide 1.180 as required by Westinghouse's purchase order to NLI.

REPORT DETAILS

1. Procurement

a. Inspection Scope

The U.S. Nuclear Regulatory Commission (NRC) inspection team reviewed Nuclear Logistics Inc. (NLI) procurement processes to verify compliance with the requirements of Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities." Specifically, the inspection evaluated the effectiveness of NLI to ensure requirements were contractually passed to Nemko Dallas USA, Inc. for electromagnetic interference/radio frequency interference (EMI/RFI) qualification testing services for the Westinghouse AP1000 Ametek Statham transmitters. The NRC inspection team selected a sample of purchase orders (POs), associated Approved Vendor List (AVL) entries, and other related NLI documents for evaluation.

b. Observations and Findings

The NLI Quality Assurance Manual (QAM), Section 4, "Procurement Document Control," and Section 7, "Control of Purchased Items and Services," describes the processes and controls established to ensure purchased items and services meet applicable technical and quality requirements. NLI-PROC-04, "Purchase Order Documentation File," and NLI-PROC-05, "Control of Purchased Items and Services," provides details in regards to the NLI procurement processes and control of purchased items and services. As required by these procedures, technical and quality requirements for AP1000 EMI/RFI qualification testing were evaluated during procurement and passed down to NLI suppliers via purchase orders.

The NRC inspection team noted one NLI PO was issued to Ametek for EMI/RFI qualification test specimens and one NLI PO was issued to Nemko for EMI/RFI qualification testing services. The NRC inspection team learned that all specimens and services were commercially procured under the NLI quality assurance (QA) program, and that NLI performed a commercial-grade survey on Nemko.

The NRC inspection team also learned orders for Ametek transmitters for U.S. nuclear projects have not been placed to date, but the transmitter qualification activities observed by the inspection team during this inspection will support US nuclear projects in the future. Additionally, NLI has not received any Nemko work products associated with the sampled POs to date.

c. Conclusions

Based on the sample of procurement documents reviewed, the NRC inspection team determined that NLI's commercial procurement process for EMI/RFI test specimens and testing services for Westinghouse AP1000 Ametek Statham transmitters satisfy the regulatory requirements set forth in Appendix B to 10 CFR Part 50.

Test Software

a. Inspection Scope

The NRC inspection team reviewed NLI's software control program related to the EMI/RFI testing to determine if software controls were in compliance with the requirements of Appendix B to 10 CFR Part 50. Specifically, the NRC inspection team evaluated the various types of test software used by either NLI or Nemko during observed qualification testing and then selected a sample of software and associated quality control documentation to assess implementation of NLI software quality controls.

The NRC inspection team selected the TILE lab software version 4.1.8.0 used by Nemko in observed qualification testing as an EMI/RFI software sample. Nemko uses TILE for automation of EMI/RFI testing activities, data acquisition, and creation of graphs used in NLI test reports.

b. Observations and Findings

The NLI QAM, Section 3, "Design Control," describes the processes and controls established to ensure that software/firmware meets applicable technical and quality requirements. NLI-QUAL-10, "QA Requirements for Software," provides detailed requirements for the verification and validation (V&V) of software products used in performing safety-related work under the NLI QA program.

The NRC inspection team noted that the TILE software V&V/dedication report outlined critical characteristics for the software, NLI vendor controls for Nemko's use of the software, and the methodology used to accept the testing results generated by the software. The NRC inspection team learned NLI's dedication/V&V of TILE consisted of a series of tests, simulations, and validation activities that were conducted to validate key targeted functions of TILE.

The NRC inspection team also learned that NLI allowed only certain Nemko hardware/software configurations, specified specific TILE profiles to be used during EMI/RFI testing, and required the verification of the allowed combinations by NLI personnel for each EMI/RFI test. The NRC inspection team observed NLI personnel performing required verifications during observed testing at Nemko.

c. Conclusions

The NRC inspection team determined that the TILE software V&V/dedication report appropriately outlined the NLI controls placed on the software and provided sufficient documentation of the NLI evaluation of TILE for use in EMI/RFI qualification testing by Nemko. Based on the limited sample of documentation reviewed and NLI oversight activities observed, the NRC inspection team determined that NLI's software quality controls for Westinghouse AP1000 Ametek Statham transmitters satisfy the regulatory requirements set forth in Appendix B to 10 CFR Part 50.

2. Commercial Grade Dedication

a. Inspection Scope

The NRC inspection team reviewed NLI's commercial-grade dedication activities and the implementation related to the EMI/RFI testing performed on the Westinghouse AP1000 Ametek Statham transmitters to determine if supplier controls were in compliance with the requirements of Appendix B to 10 CFR Part 50. Specifically, the NRC inspection team evaluated the effectiveness of NLI dedication activities to ensure proper oversight of their subsuppliers. The inspectors selected a sample of commercial-grade surveys and evaluations performed by NLI to provide periodic inspection and verification of control processes of subsuppliers.

b. Observations and Findings

The NRC inspection team reviewed NLI-TECH-03, "Commercial Grade Item Dedication" Revision 14, dated May 7, 2012 and noted that it identifies the methodology for performing commercial grade dedication for use in safety-related applications. It discusses the technical and quality requirements for performing a dedication. Section 2.1.3 states that, "A technical evaluation can be used to identify the critical characteristics" and section 2.1.3 states that "Identification of the critical characteristics is based on the safety function". It also provides a description of support documentation which includes dedication plans, reports, and backup documentation that will be treated as safety-related records and will be maintained in accordance with NLI's QA program.

The NRC inspection team discovered that NLI only performs commercial grade surveys of Nemko as the method to dedicate the services that Nemko provides. NLI's commercial grade surveys of Nemko consist of the review and verification of selected critical characteristics along with specific processes and procedures. These surveys lacked technical evaluations of services as well as identification of the safety function of the testing services provided by Nemko. The NRC inspection team reviewed the approved vendors list (AVL) to ensure that Nemko was listed as an approved supplier and that the scope of supply of services was documented and consistent for the activities contracted.

The NRC inspection team reviewed samples of surveys of Nemko performed by NLI for EMI/RFI testing services and found an example in which NLI failed to ensure that critical characteristics were properly identified and verified by survey methods. Specifically, NLI attached the National Voluntary Laboratory Accreditation Program (NVLAP) scope of accreditation for NEMKO USA, Inc. in the commercial grade survey report, CGSR-AVL-124-05, as part of the backup documentation of critical characteristic "Inspect and Verify Control of M&TE". The NRC staff has determined that NVLAP, the American Association for Laboratory Accreditation (A2LA), or any other accreditation provided by a domestic accrediting body may only be used as the basis for qualifying a commercial calibration laboratory as part of the commercial-grade dedication process when all of the requirements described in the Arizona Public Service Company (APS) safety evaluation report (Agencywide Documents Access and Management System (ADAMS) Accession No. ML052710224) are met. This guidance was expanded to include the use of domestically accredited calibration laboratories by suppliers and sub-suppliers in an

NRC Letter to Ms. Sherry Grier, NUPIC Chairman dated June 6, 2006, (ML061580350). While the NRC has accepted such accreditation in specific instances for calibration services only as part of commercial grade dedication process, the NRC has not accepted such accreditation for laboratory services such as EMI testing. Additionally, the NRC inspection team identified that Nemko was not accredited by NVLAP to perform MIL-STD-461E or IEC 61000-4-12.

All safety-related activities such as EMC testing for safety-related transmitters are required to be performed in accordance with an approved quality assurance program that meets Appendix B to 10 CFR Part 50 and also 10 CFR Part 21. Should a licensee or a vendor chose to utilize a commercial supplier that does not conform to these requirements, NRC Generic Letter 89-02, allows the purchaser to alternatively, "dedicate" the item or service being procured, which is the path NLI chose for the EMC testing. Through the dedication process, the critical characteristics of the service are identified, as are methods for verifying that the critical characteristics of the service have been achieved.

The NRC inspection team discovered that NLI did not identify or verify critical characteristics that would ensure that the requirements for EMI/RFI testing would be met. For example, MIL-STD-461E lists specific equipment, calibration, procedures, and test setups depending on the type of test. The applicable IEC standards list test equipment with required characteristics and parameters, as well as specific criteria for the test procedure and test plan. NLI's commercial grade survey reviews training, calibration, and that Nemko has the MIL-STD-461E and applicable IEC procedures, but does not review the equipment requirements and parameters, procedures, or test plans for the applicable tests.

The failure to properly dedicate and review the services that Nemko is providing for the safety-related JE52 and JE61 transmitters is identified as Nonconformance 99901298/2012-201-01.

c. Conclusions

Based on the issuance of Nonconformance 99901298/2012-201-01, the NRC inspection team determined that NLI's current CGD and supplier control processes for Nemko's EMI/RFI testing activities do not satisfy the regulatory requirements set forth in Appendix B to 10 CFR Part 50.

3. Nonconformances and Test Anomalies

a. Inspection Scope

The NRC inspection team reviewed NLI's policies and procedures governing the implementation of nonconforming components and test anomalies resulting from EMI/RFI qualification testing to verify compliance with Criterion XV, "Nonconforming Materials, Parts, or Components," of Appendix B to 10 CFR Part 50. In addition, the NRC inspection team conducted several interviews of NLI's management and technical staff about the evaluation process of nonconforming components and test anomalies. The NRC inspection team also verified that NLI's nonconformance process provides guidance to evaluate nonconformances for reportability under NLI's 10 CFR Part 21,

"Reporting of Defects and Noncompliance" program and also had a tie to the corrective action program.

The NRC inspection team verified that, for the sample of nonconformances reviewed, NLI had (1) dispositioned the nonconformances it identified in accordance with NLI approved procedures, (2) presented an appropriate technical justification for various dispositions, (3) taken adequate action with regard to the nonconforming material or item, and (4) subjected all identified nonconformances, as appropriate, to a 10 CFR Part 21 assessment or evaluation. The NRC inspection team also reviewed a sample of test anomalies and modifications of test specimens to ensure that anomalies (1) were properly identified and correctly dispositioned in the appropriate processes (2) contained proper management review approval and (3) were evaluated for impact on the item's safety function or qualification, when applicable.

The NRC inspection team also performed walkdowns of testing areas and the facility to observe ongoing EMI/RFI testing activities for the identification and control of nonconformance reports (NCR) that could contribute to quality issues.

b. Observations and Findings

While conducting a review of test anomalies and modifications approved in PO #10322999 "Approval Qualification Report for Trane Adaptiview Chiller controls", Revision 0, dated May 2012, the NRC inspection team noted examples in which two modifications were not evaluated to determine whether the design changes impacted the original design requirements of the test specimen. These modifications consisted of a ferrite snap-on filter that was added to the guide vane actuator signal line and 3/8 steel washers that were added behind the control panel to secure the panel during EMI/RFI testing activities. Previous qualification testing such as seismic testing was already performed on this test specimen and there was no evidence of an evaluation done to determine whether the added modifications could have potentially affected previous test results. The modification of the 3/8 steel washers was documented by NLI in test anomaly #05215515-02, dated April 18, 2012, but did not provide justification for the addition to the test specimen nor a basis of how the original design requirements or previous testing activities were not affected.

Section 1 of NLI-QUAL-06, "Nonconformance Reporting, Corrective, and Preventative Action", Revision 19, dated November 11, 2012 describes the requirements the identification, documentation, evaluation, segregation, disposition, and control of nonconforming items. It also details how applicable discrepancy reports (DR's) or nonconformance reports (NCR's) will be prepared for reporting of nonconformances. The NRC inspection team identified that there was no discrepancy report issued for this modification to ensure that it was correctly evaluated, tracked, and resolved. The modification of the ferrite snap-on filter was not identified in a test anomaly report and no discrepancy report was issued for this modification of the test specimen. NLI initiated Discrepancy Report #3306 to address this issue.

The failure to evaluate design changes in the qualification process to ensure that the original design requirements are still being met is listed in Nonconformance 99901298/2012-201-02.

c. Conclusions

The NRC inspection team issued Nonconformance 99901298/2012-201-02 for the failure of NLI to evaluate modifications on the Trane Adaptiview Chiller Control system during the qualification process to ensure that the design changes did not negatively impact the original design requirements. With the exception of Nonconformance 99901298/2012-201-02, the NRC inspection team determined that NLI is implementing its policies and procedures associated with the control of nonconforming components and test anomalies.

4. Technical Requirements

a. Inspection Scope

The NRC inspection team reviewed the NLI's purchase order to Nemko, NLI's test qualification plan, applicable transmitter data sheets, general design equipment specifications for the transmitters, MIL-STD-461E, applicable IEC standards, and applicable Nemko documents to ensure that applicable NRC regulations and NLI's PO requirements were adequately addressed. The NRC inspection team also observed portions of the CE101, CE102, and electrical fast transient testing on the JE52 transmitters. Additionally, the NRC inspection team reviewed a sample of calibration records for the test equipment being used to ensure that the measuring and test equipment were appropriately controlled.

b. Observations and Findings

The NRC inspection team noticed that Nemko was using and referencing MIL-STD-461E and the applicable IEC standards when setting up and performing EMI/RFI testing. The NRC inspection team noted that the CE101 and CE102 tests were mostly automated by the TILE software, which is described in section two of this report. The test parameters, acceptance criteria, facility environmental conditions, and evaluations of results for the observed CE101, CE102, and electrical fast transient testing was verified to follow the requirements of the MIL-STD-461E and applicable IEC standards. The NRC inspection also noted that for the sample of calibration records and certificates that were reviewed did not have any issues.

c. Conclusions

Based on the observed tests and sample of calibration records reviewed, the NRC inspection team determined that the EMI/RFI testing for the JE52 transmitters conformed to the requirements of Regulatory Guide 1.180 as required by Westinghouse's purchase order to NLI.

6. Entrance and Exit Meetings

On June 4, 2012, the NRC inspection team presented the inspection scope during an entrance meeting with Mr. Aron Seiken, President of NLI, and other NLI personnel. On June 8, 2012, the inspectors presented the inspection results during an exit meeting with Mr. Aron Seiken, President of NLI, and other NLI personnel.

ATTACHMENT

1. PERSONS CONTACTED AND NRC STAFF INVOLVED:

Name	Title	Affiliation	Entrance	Exit	Interviewed
Aron Seiken	President	NLI	X	X	X
Tracy Bolt	Director of Quality Assurance	NLI	X	X	X
Nathan Morris	V&V Engineer/Lead Auditor	NLI	X	X	X
Chris Goddard	Quality Engineer	NLI			X
Blake Anderson	Project Engineer	NLI	X		X
Archie Bell	Software Quality Manager	NLI	X	X	
Dwaine Hartman	EMC Engineer	Nemko			X
Mike Cantwell	Technical Manager	Nemko			X
Jenny Bond	Quality Manager	Nemko			X
William Very	Senior Engineer	Westinghouse			X
Eric Clark	Senior Engineer	Westinghouse			X
Eugene Huang	Inspection Team Leader	NRC	X	X	
George Lipscomb	Inspection Team Member	NRC	X	X	
Shavon Edmonds	Inspection Team Member	NRC	X	X	

2. INSPECTION PROCEDURES USED:

IP 43002, “Routine Inspections of Nuclear Vendors”

IP 43004, “Inspection of Commercial-Grade Dedication Programs”

3. ITEMS OPENED, CLOSED, AND DISCUSSED:

Item Number	Status	Type	Description
99901298/2012-201-01	Opened	NON	App. B, Criterion III
99901298/2012-201-02	Opened	NON	App. B, Criterion III

4. DOCUMENTS REVIEWED:

NLI Drawings

21714540-PT-1, “PG3250 pressure transmitter part number development,” Revision 3, October 13, 2011

21714540-PT-1, “PG3250 pressure transmitter layout drawing,” Revision 4, December 14, 2011

21714540-PT-3, “PD/PDH3258 diff. pressure transmitter layout drawing,” Revision 4, December 14, 2011

NLI Procedures

NLI Quality Assurance Manual (QAM), Revision 11, November 3, 2010

NLI-PROC-04, “Purchase Order Documentation File,” Revision 20, January 4, 2012

NLI-PROC-05, “Control of Purchased Items and Services,” Revision 22, December 8, 2011

NLI-QUAL-10, “Quality Assurance Requirements for Software,” Revision 5, September 23, 2010

NLI-QUAL-05, “Control of Measuring and Test Equipment,” Revision 10, October 2011

NLI-TECH-03, “Commercial Grade Item Dedication”, Revision 14, May 7, 2012

NLI-TECH-05, Equipment Qualification Procedure, Revision 11, June 5, 2008

NLI-QUAL-06, “Nonconformance Reporting, Corrective, and Preventative Action,” Revision 19, November 11, 2012

NLI Nonconformance Reports and Test Anomalies

NCR-417, “Nemko performed software V&V to support the use of TILE in automated EMI/RFI testing activities but were not documented to the extent required by NLI,” May 3, 2012

#21714062-19, (NLI’s) Test Anomaly on Pressure Transmitter specimens 1,4, and 6, June 7, 2012

#05215515-01, (NLI’s) Test Anomaly on Trane AdaptiView Chiller Controls, May 16, 2012

#05215515-02, (NLI’s) Test Anomaly on Trane AdaptiView Chiller Controls, May 16, 2012

#05215515-03, (NLI's) Test Anomaly on Trane AdaptiView Chiller Controls, May 16, 2012

DR-3306, Discrepancy Report for Chiller Controls Modifications, Rev 0, June 7, 2012

NLI Procurement Documents

PO No. 0034558, Revision 3, to NEMKO USA, Ltd. for "EMI/RFI Testing," June 1, 2012

PO No. 0032844, Revision 7, to Ametek Power Systems & Industrial Products for "Ametek 3200 series pressure transmitters," December 1, 2011

NLI Approved Vendor Summary AVL-124, Revision 8, for NEMKO Dallas Inc., June 1, 2012

NLI Approved Vendor Summary AVL-124, Revision 6, for NEMKO Dallas Inc., March 5, 2010

NLI Approved Vendor Summary AVL-322, Revision 2, for Ametek Power Instruments, April 14, 2012

NLI Approved Vendor Summary AVL-322, Revision 1, for Ametek Power Instruments, May 7, 2007

Receipt No. 053293 for "Ametek pressure transmitters," March 13, 2012

Calibration Certificates

Certificate of calibration #5218017 for NEMKO USA, Inc. HP, 8563E, portable spectrum analyzer, serial #3551A04428, asset#1464, May 16, 2011

Certificate of calibration #5654847 for NEMKO USA, Inc. HP 85662A, spectrum analyzer, serial #1811A00223, asset#1283, May 16, 2012

Certificate of calibration #5348507 for NEMKO USA, Inc. Rohde & Schwarz, FSP, Spectrum analyzer, serial #100073, September 2, 2011

Certificate of calibration #5512083 for NEMKO USA, Inc. HP 8561E, spectrum analyzer, serial #3850A02382, asset #1867, January 18, 2012

Certificate of calibration #5598487 for NEMKO USA, Inc. HP 8561E, spectrum analyzer, serial #3804A02232, asset #1894, March 26, 2012

Certificate of calibration #5641618 for NEMKO USA, Inc. Marconi 2024 signal generator, serial #112211/052, asset #1771, April 30, 2012

Certificate of conformance asset#1793, ETS-Lindgren isotropic probe>1GHz, serial #00090030, February 22, 2012

Certificate of calibration 2012042725, AR FL7018, serial #0325386, asset #1206, April 30, 2012

In-house calibration certification, NEMKO 1067 High Freq Cable, asset#1067, February 15, 2012

In-house calibration certification, Teledyne technologies company, asset#1067,1528,1972, May 5, 2012

Certificate of calibration #5274027, for NEMKO USA, Inc. Tektronix, TDS684A, oscilloscope, serial #B010460, asset #1463, July 8, 2011

In-house calibration certification, asset#1901, solar electronics company line impedance stabilizer network, serial #98882, May 2, 2012

In-house calibration certification, asset#1902, solar electronics company line impedance stabilizer network, serial #98883, May 3, 2012

In-house calibration certification, asset#1903, solar electronics company line impedance stabilizer network, serial #112520, May 3, 2012

In-house calibration certification, asset#1904, solar electronics company line impedance stabilizer network, serial #112521, May 3, 2012

NLI Commercial Grade Survey Reports

CGSR-AVL-124-05, Commercial Grade Survey Report, Facility Lewisville, TX, May 8, 2012-May 25, 2012

CGSR-AVL-124-05 R1, Commercial Grade Survey Report Plan, Facility Lewisville, TX, May 8, 2012

CGSR-AVL-124-04, Commercial Grade Survey Report, Facility Lewisville, TX, February 9, 2010

CGSR-AVL-124-01, Commercial Grade Survey Report Plan, Facility Lewisville, TX, February 9, 2010

CGSR-AVL-124-03, Commercial Grade Survey Report, Facility Lewisville, TX, March 1, 2005

CGSR-AVL-124-02, Commercial Grade Survey Report, Facility Lewisville, TX, February 10, 2003

CGSR-AVL-124-02, Commercial Grade Survey Report Plan, Facility Lewisville, TX, February 10, 2003

CGSR-AVL-124-01, Commercial Grade Survey Report, Facility Lewisville, TX, October 30-31, 2001

CGSR-AVL-124-01, Commercial Grade Survey Report Plan, Facility Lewisville, TX, October 29, 2001

Westinghouse Procurement Documents

Purchase Order (PO) No. 4500355778 to Nuclear Logistics Inc. for "AP1000 Ametek 3200 series transmitter qualification," August 5, 2010

PO No. 4500366530 to Nuclear Logistics Inc. for "1E Pressure Transmitters," November 5, 2010

Miscellaneous Documents

QP-21714062-2, "Qualification Plan for Ametek Statham Transmitters," Revision 2, April 2012

QP-21714062-2, "Baseline functional test for PG3250-500-78-12-36-NI-0-0," Revision1, March 19, 2012

QP-21714062-2, "Baseline functional test for PD3258-400-38-12-36-N3-15-0," Revision 1, March 27, 2012

QP-21714062-2, "Baseline functional test for PDH3250-030-58-22-36-N2-0," Revision 1, March 19, 2012

QR-05215515-1, "Approval Qualification Report for Trane Adaptiview Chiller controls," Revision 0, Entergy Operations-River Bend Station PO # 10322999

PPPF-76, "NLI Project Performance Plan for Westinghouse JE52 Pressure and Differential Transmitters," Revision 0, June 4, 2012

VVR-AVL-124-01, "NLI Software Verification and Validation / Dedication Report," Revision 2, June 6, 2012

VVR-AVL-124-01, "NLI Software Verification and Validation / Dedication Report," Revision 1, May 31, 2012

APP-JE52-Z0R-001, "AP1000 Class 1E Pressure and Differential Pressure Transmitters Data Sheet Report," Revision 1, August 2011

APP-JE52-Z0-001, "General design equipment specification for class 1E pressure and differential pressure transmitters," Revision 2, February 2011

APP-GW-G1-002, "Equipment qualification methodology," Revision 3, February 2012

NLI Approved Vendor Summary, Revision 8, June, 1 2012 expiration date May 8, 2015

TIR-05216060-1, Chiller Control Upgrade, Revision 0, May 23, 2012

#052-15515, Engineering Change Notice for Chiller Controls Upgrade, Revision 0, May 31, 2012

NVLAP Lab Code: 100426-0, "National Voluntary Laboratory Accreditation Program. Scope of accreditation to ISO/IEC 17025:2005 for NEMKO USA, Inc.," January 1, 2012 – December 31, 2012

MIL-STD-461E, "Requirements for the Control of Electromagnetic Interference Characteristics of Subsystems and Equipment," Military Standard (MIL) Section RS103, "Radiated Susceptibility, Electric Field, 2 MHz to 40 GHz," August 20, 1999

IEC 61000-4-4, "Electromagnetic Compatibility (EMC)," International Electromechanical Commission (IEC), 1995

IEC 61000-4-2, "Electromagnetic Compatibility (EMC)," International Electromechanical Commission (IEC), 1995

IEC 61000-4-5, "Electromagnetic Compatibility (EMC)," International Electromechanical Commission (IEC), 1995

IEC 61000-4-12, "Electromagnetic Compatibility (EMC)," International Electromechanical Commission (IEC), 1996

U.S. Nuclear Regulatory Commission, Regulatory Guide 1.180, "Guidelines for Evaluating Electromagnetic and Radio-Frequency Interference in Safety-Related Instrumentation and Controls Systems," Revision 1, October 2003

5. ACRONYMS USED:

AVL	approved vendor list
CEVB	Construction Electrical Vendor Branch
CFR	*Code of Federal Regulations*
CGD	commercial-grade dedication
DCIP	Division of Construction Inspection and Operational Programs
EMC	electromagnetic compatibility
EMI	electromagnetic interference
EQ	equipment qualification
EUT	equipment under test
IEC	International Electrotechnical Commission
IP	inspection procedure
MIL	military standard
MT&E	measuring and test equipment
NCR	nonconformance report
NLI	Nuclear Logistics, Inc.
NON	notice of nonconformance
NRC	(U.S.) Nuclear Regulatory Commission
NRO	Office of New Reactors
PO	Purchase Order

PPPF	Project Performance Plan Form
QA	quality assurance
QAM	Quality Assurance Manual
QP	qualification plan
RFI	radio frequency interference
RG	regulatory guide
V&V	verification and validation
VVR	verification and validation report