

May 25, 2016

Mr. Lewis Rogers  
Quality Assurance Manager  
Lisega Inc.  
370 E Dumplin Valley Rd.  
Kodak, TN 37764

SUBJECT: LISEGA'S NUCLEAR REGULATORY COMMISSION INSPECTION REPORT  
NO. 99901237/2016-201

Dear Mr. Rogers:

From April 18-22, 2016, the U.S. Nuclear Regulatory Commission (NRC) staff conducted an inspection at the Lisega's facility in Kodak, TN. The purpose of this limited-scope routine inspection was to assess Lisega's compliance with provisions of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 21, "Reporting of Defects and Noncompliance," and selected portions of Appendix B, "Quality Assurance Program Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities."

This technically-focused inspection specifically evaluated Lisega's implementation of the quality activities associated with the design, manufacturing, and testing of American Society of Mechanical Engineers, Section III, piping supports being supplied to the Westinghouse Electric Company AP1000 reactor design as well as operating reactors. The enclosed report presents the results of this inspection. This NRC inspection report does not constitute NRC endorsement of Lisega's overall quality assurance (QA) program.

Based on the results of this inspection, the NRC inspection team found that the implementation of your QA program met the regulatory requirements imposed on you by your customers or NRC licensees. No findings of significance were identified.

In accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding," of the NRC's "Rules of Practice," the NRC will make available electronically for public inspection a copy of this letter, its enclosure, and your response through the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System, which is accessible at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response (and if applicable), 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, 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 be 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 would 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 P. McIntyre, Acting Chief  
Quality Assurance Vendor Inspection Branch 2  
Division of Construction Inspection  
and Operational Programs  
Office of New Reactors

Docket No.: 99901237

Enclosure:  
Inspection Report No. 99901237/2016-201  
and Attachment

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 P. McIntyre, Acting Chief  
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NRO-002

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<b>NAME</b>	ABelen	TKendzia	TSteadham*
<b>DATE</b>	05/16/16	05/16/16	05/12/16
<b>OFFICE</b>	NRO/DCIP/QVIB-2	NRO/DCIP/QVIB-2	
<b>NAME</b>	JOrtega-Luciano	RMcIntyre	
<b>DATE</b>	05/16/16	05/25/16	

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

Docket No.: 99901237

Report No.: 99901237/2016-201

Vendor: Lisega Inc.  
370 E Dumplin Valley Rd  
Kodak, TN 37764

Vendor Contact: Lewis Rogers  
Quality Assurance Manager  
E-mail: lewis.rogers@us.lisega.com  
Phone: 865-940-5207

Nuclear Industry Activity: Lisega, located in Kodak, TN, is currently manufacturing piping supports that are being supplied for use in safety-related systems as part of the Westinghouse AP1000 reactor design currently under construction at the Vogtle and VC Summer sites. Lisega also supplies pipe supports to the operating fleet.

Inspection Dates: April 18-22, 2016

Inspectors: Jonathan Ortega-Luciano NRO/DCIP/QVIB-2,  
Inspection Leader  
Aixa Belen NRO/DCIP/QVIB-2  
Tom Kendzia NRO/DCIP/QVIB-3  
Tim Steadham Region II/DCI/CIB3

Approved by: Richard P. McIntyre, Acting Chief  
Quality Assurance Vendor Inspection Branch 2  
Division of Construction Inspection  
and Operational Programs  
Office of New Reactors

Enclosure

## **EXECUTIVE SUMMARY**

Lisega Inc.  
99901237/2016-201

The U.S. Nuclear Regulatory Commission (NRC) staff conducted this inspection to verify that Lisega facility implemented an adequate quality assurance (QA) program that complies 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." In addition, the NRC inspection to verify that Lisega implemented a Part 21 program that complied with the requirements of 10 CFR Part 21, "Reporting of Defects and Noncompliance."

The NRC conducted the inspection at the Lisega facility in Kodak, TN April 18-22, 2016. This was the initial NRC inspection at this Lisega facility.

This technically-focused inspection specifically evaluated Lisega's implementation of quality activities associated with the design and manufacturing associated with the requirements of the American Society of Mechanical Engineers (ASME) Section III, Subsection NF, Supports, Subsection NCA, General Requirements for Division 1 and Division 2, Class 1, 2, 3, and non-code safety-related piping supports being supplied to the new and operating reactors.

Specific activities observed by the NRC inspection team included:

- Day shift pre-shift safety and Production Meeting
- Evening Shift pre-shift Safety and Production Meeting
- Magnetic particle inspection for a recovery steam system support, Project No. 51861, Fabrication Order No. 609213 for Vogtle Unit 3
- Liquid penetrant inspection for a passive core cooling system support, Project No. 51859, Fabrication Order No. 607657 for VC Summer Unit 3
- Welding for a primary system pipe support, Project No. 51861, Fabrication Order No 609209 for Vogtle Unit 3;
- Welding for a residual heat removal system pipe support, Project No. 51861, Fabrication Order No 608886 for Vogtle Unit 3;
- Welding for a main control room emergency habitability system pipe support, Project No. 51861, Fabrication Order No 609265 for Vogtle Unit 3
- Hydraulic snubber assembly for Project No. 56336, Fabrication Order No. 605889, for Waterford nuclear power plant
- Final inspection for reactor coolant system pipe support, Project No. 5185946, Fabrication Order No. 612305 for Vogtle Unit 4
- Final inspection for passive containment cooling system pipe support, Project No. 51857, Fabrication Order No. 606802 for VC Summer Unit 2
- In-House calibration for QCG-0544, coating thickness gage

In addition to observing these activities, the NRC inspection team verified that measuring and test equipment (M&TE) was properly identified, marked, calibrated, and used within its calibrated range. Also, the NRC inspection team performed a shop walk-down and verified that nonconforming items were identified and segregated in accordance with regulatory requirements.

These regulations served as the bases for the NRC inspection:

- Appendix B to 10 CFR Part 50
- 10 CFR Part 21

During the course of this inspection, the NRC inspection team implemented Inspection Procedure (IP) 43002, "Routine Inspections of Nuclear Vendors," IP 43004, "Inspection of Commercial-Grade Dedication Programs," and IP 36100, "Inspection of 10 CFR Part 21 and Programs for Reporting Defects and Noncompliance."

The NRC inspection team concluded that Lisega's QA policies and procedures comply with the applicable requirements of Appendix B to 10 CFR Part 50 and 10 CFR Part 21, and that Lisega's personnel are implementing these policies and procedures effectively. The results of this inspection are summarized below.

#### Inspection Areas

The NRC inspection team determined that Lisega is implementing its programs for design control, commercial-grade dedication, supplier oversight, audits, manufacturing control, control of special processes, control of M&TE, handling, storage, and shipping, nonconforming material parts, and components, and corrective action in accordance with the applicable regulatory requirements of Appendix B to 10 CFR Part 50. Also, Lisega is implementing its Part 21 program in accordance with the regulatory requirements of 10 CFR Part 21. Based on the limited sample of documents reviewed and activities observed, the NRC inspection team also determined that Lisega is implementing its policies and procedures associated with these programs and no findings of significance were identified.

## REPORT DETAILS

### 1. 10 CFR Part 21 Program

#### a. Inspection Scope

The NRC inspection team reviewed Lisega's policies and implementing procedures that govern Lisega's 10 CFR Part 21, "Reporting of Defects and Noncompliance," program to verify compliance with the regulatory requirements. In addition, the NRC inspection team evaluated the 10 CFR Part 21 postings and a sample of Lisega's purchase orders (PO) for compliance with the requirements of 10 CFR 21.21, "Notification of Failure to Comply or Existence of a Defect and its Evaluation," and 10 CFR 21.31, "Procurement Documents." The NRC inspection team also verified that Lisega's nonconformance and corrective action procedures provide a link to the 10 CFR Part 21 program. The attachment to this inspection report lists the documents reviewed by the NRC inspection team.

#### b. Observations and Findings

No findings of significance were identified.

#### c. Conclusion

The NRC inspection team concluded that Lisega is implementing its 10 CFR Part 21 program in accordance with the regulatory requirements of 10 CFR Part 21. Based on the limited sample of documents reviewed, the NRC inspection team also determined that Lisega is implementing its policies and procedures associated with the 10 CFR Part 21 program. No findings of significance were identified.

### 2. Design Control and Commercial-Grade Dedication

#### a. Inspection Scope

The NRC inspection team reviewed Lisega's policies and implementing procedures that govern the design control program, verification and validation of computer programs, and commercial-grade dedication to verify their compliance with the regulatory requirements of Criterion III, "Design Control," of Appendix B to 10 CFR Part 50.

The NRC inspection team reviewed a sample of four Lisega-designed American Society of Mechanical Engineers Boiler and Pressure Vessel (ASME) Code Section III, Subsection NF pipe supports that were in various stages of fabrication at Lisega for domestic AP1000 plants. The NRC inspection team reviewed the ASME design reports and design specifications to ensure that the supports were designed in accordance with the ASME Code requirements. Also, the NRC inspection team verified that the design report summaries were adequately supported and consistent with the ASME design reports and specifications. The NRC inspection team ensured that the ASME design reports, specifications, and design report summaries were approved by licensed Registered Professional Engineers.

The NRC inspection team reviewed Lisega's Validation/Verification (v/v) for computer software Ansys 15.0, used by Lisega in the design of pipe supports, to verify that the v/v methodology, the results of the v/v, the calculations that were used to perform the verification, the limitations on usage of the program, methodology to capture changes to the program, and the review and approval processes were compliance with regulatory requirements.

In addition, the NRC inspection team reviewed Lisega's commercial-grade dedication process to verify its compliance with the applicable regulatory requirements. The NRC inspection was not able to select a sample because Lisega has not used commercial-grade dedication for a safety-related application for any current work.

The NRC inspection team discussed the design-control program, verification and validation of computer programs, and the commercial-grade dedication program with Lisega's management and technical staff. The attachment to this inspection report lists the documents reviewed by the NRC inspection team.

b. Observations and Findings

The team reviewed documents for the following supports:

- Vogtle Unit 3 SV3-PCS-PH-12R0052 Pipe Strap
- Vogtle Unit 4 SV4-RNS-PH-12V01641 Yoke Clamp
- V.C. Summer Unit 3 VS3-PXS-PH-11R0006 Strut
- V.C. Summer Unit 3 VS3-SGS-PH-12A3331 Friction Anchor

For these four sampled supports, the NRC inspection team reviewed the shop travelers to ensure that the supports were manufactured in accordance with the drawings used in the applicable ASME design reports.

The NRC inspection team reviewed the Westinghouse design specifications imposed on Lisega through the PO to ensure that the supports complied with the procurement documents. As part of this review the NRC inspection team verified that the materials specified and that the mechanical properties used in the design reports complied with requirements of ASME Section II.

The NRC inspection team reviewed a sample of design changes to ensure that the changes were properly incorporated and supported by the design report and that the design report were reviewed and approved by designated personnel in accordance with Lisega's procedures. In addition, the NRC inspection team reviewed design interface documents between Westinghouse and Lisega to ensure that the most current design report summaries were adequately provided to Westinghouse.

No findings of significance were identified.



c. Conclusion

The NRC inspection team concluded that Lisega is implementing its design control, verification and validation of computer software, and commercial-grade dedication programs in accordance with the regulatory requirements of Criterion III of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that Lisega is implementing its policies and procedures associated with the design control, verification and validation of computer, and commercial-grade dedication programs. No findings of significance were identified.

3. Supplier Oversight and Internal Audits

a. Inspection Scope

The NRC inspection team reviewed Lisega's policies and implementing procedures that govern the implementation of its oversight of contracted activities to verify compliance with the requirements of Criterion IV, "Procurement Document Control," Criterion VII, "Control of Purchased Material, Equipment, and Services," and Criterion XVIII, "Audits," of Appendix B to 10 CFR Part 50. Specifically, the NRC inspection team reviewed Lisega's supplier qualification process, procurement process, and control of suppliers by focusing on control of key elements of the fabrication of parts, components, and services being procured.

The NRC inspection team reviewed Lisega's process for selecting and approving suppliers and service providers of safety-related components. The NRC inspection reviewed Lisega's approved vendor list and selected a sample of five audits for suppliers of safety-related materials and one audit for a supplier of safety-related services. Also, the NRC inspection team reviewed Lisega's 2014 and 2015 internal audits. For the sample selected the NRC inspection verified that scheduled audits were performed using checklists and/or procedures and that the checklists and/or procedures included an audit plan, audit results, documented objective evidence, and a review by responsible management. The NRC inspection verified that the audits were performed at the frequency in accordance with Lisega's procedures and QA Manual. The team reviewed the disposition of audit findings for adequacy and timeliness. The NRC inspection team reviewed a sample of training and qualification records to verify that the auditing personnel completed all the required training and maintained qualification and certification in accordance with Lisega's policies and procedures.

The NRC inspection team reviewed 10 POs for ASME Section III material and 5 POs for safety-related services, such as calibration and Level III personnel for nondestructive examination. For the for ASME POs, the NRC inspection team reviewed receipt inspection documentation, such as certified material test reports (CMTRs) and certificates of compliance (C of C), to ensure that the materials received complied with the requirements for ASME Section III, Class 1 materials used for Subsection NF supports. The NRC inspection team verified that the mechanical and chemical properties documented in the CMTRs were consistent with ASME Section II material specification requirements.

The NRC inspection team discussed the oversight of contracted activities and internal audits program with Lisega's management and technical staff. The attachment to this inspection report lists the documents reviewed and personnel interviewed by the NRC inspection team.

b. Observations and Findings

No findings of significance were identified.

c. Conclusion

The NRC inspection team concluded that Lisega is implementing its oversight of contracted activities and internal audits in accordance with the regulatory requirements of Criterion IV, "Procurement Document Control," Criterion VII, "Control of Purchased Material, Equipment, and Services," and Criterion XVIII, "Audits," of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that Lisega is implementing its policies and procedures associated with the oversight of contracted activities. No findings of significance were identified.

4. Manufacturing Control and Control of Special Processes

a. Inspection Scope

The NRC inspection team reviewed Lisega's policies and implementing procedures that govern the implementation of manufacturing control and control of special processes programs to verify compliance with Criterion VIII, "Identification and Control of Materials, Parts and Components," Criterion X, "Inspection," and Criterion IX, "Control of Special Processes," of Appendix B to 10 CFR Part 50. The NRC inspection team reviewed a sample of inspection, welding, and nondestructive examination (NDE) documents associated with the fabrication of safety-related pipe supports for the AP1000 reactor design.

The NRC inspection team observed welding activities and verified that the welders were qualified in accordance with approved welding procedure specification (WPS). The NRC inspection team reviewed WPS and their associated procedure qualification records (PQR) and confirmed that the WPS and PQRs were developed and qualified in accordance with the requirements of Subsection NB, Class 1 components of Section III and Section IX, "Welding Brazing and Fusing Qualifications" of the ASME Code.

The NRC inspection team performed a walk down of the welding material storage and welding material issue areas and verified that welding material was adequately issued to welders and controlled. The NRC inspection team observed that Lisega clearly identified welding materials at all times, and it retained identification of acceptable material throughout storage, handling, and use until the material was completely consumed in the welding process. The NRC inspection team verified that the applicable welding data; such as weld material identification number, WPS, inspection procedures, and the final inspection results were recorded on weld travelers.

The NRC inspection team observed the performance of a receipt inspection and two final inspections to ensure that the quality control (QC) inspector verified the applicable requirements of the welding activity. These included part number, serial number, assembly drawing and its revision of job order, WPS, its associated PQR, welder qualifications, weld filler rods specifications and the welding machine calibration.

The NRC inspection team reviewed Lisega's NDE procedures for visual testing (VT), penetrant testing (PT), and magnetic particle (MP), to verify they are developed in accordance with the requirements of ASME Section V and qualified in accordance with the requirements of ASME Section III. The NRC inspection team observed a sample of PT and MT operations and verified that the NDE materials used were identified by their lot/batch number and expiration date. The NRC inspection team verified that Lisega's NDE processes are performed using calibrated equipment and qualified inspectors. The NRC inspection team reviewed that Lisega's NDE personnel qualification and certification program was established in accordance with the American Society for Nondestructive Testing (ASNT) SNT-TC-1A, "Personnel Qualification and Certification in Nondestructive Testing," 2006 Edition. In addition, the NRC inspection team observed that Lisega maintain the qualifications of NDE personnel to the most conservative requirements to comply with all the editions of ASNT SNT-TC-1A.

The NRC inspection team also verified that the identification markings used on the materials provided a clear and legible identification and do not adversely affect its function or the service life of the item. The NRC inspection team verified that the part number or trace code number was maintained on the item and in documents traceable to the item. The NRC inspection team reviewed a sample of CMTRs and C of Cs reports to verify compliance with the procurements document requirements for chemical composition, mechanical properties and/or dimension.

The NRC inspection team discussed the manufacturing control and control of special processes with Lisega's management and technical staff. The attachment to this inspection report lists the documents reviewed by the NRC inspection team.

b. Observations and Findings

No findings of significance were identified.

c. Conclusions

The NRC inspection team concluded that Lisega is implementing its manufacturing control and control of special processes programs in accordance with the regulatory requirements of Criterion VIII, Criterion X, and Criterion IX of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed and operations observed, the NRC inspection team also determined that Lisega is effectively implementing its policies and procedures associated with the manufacturing control and control of special processes programs. No findings of significance were identified.

## 5. Control of Measuring and Test Equipment

### a. Inspection Scope

The NRC inspection team reviewed Lisega's policies and implementing procedures that govern the M&TE program to verify compliance with the requirements of Criterion XII, "Control of Measuring and Test Equipment," of Appendix B to 10 CFR Part 50. The NRC inspection team also reviewed a sample of calibration records and observed the calibration of the coating thickness gauge. The NRC inspection team also verified that when M&TE equipment is received from the calibration service supplier, and the calibration certificate states that it was found to be out of calibration, Lisega initiates an out-of-tolerance gauge report or a nonconformance report (called a Variance Report) to identify items that have been accepted using this equipment since the last valid calibration date and to perform an extent of condition review.

The NRC inspection team selected a sample of M&TE being used and verified that they were labeled, tagged, handled and stored properly. The NRC inspection team verified that the labels indicated the calibration status of the instrument, and that the information was traceable to calibration records. Also, the NRC inspection verified that the tools were calibrated to a nationally recognized standard, and included the calibration performed and due dates.

The NRC inspection team discussed the M&TE program with Lisega's management and technical staff. The attachment to this inspection report lists the documents reviewed by the NRC inspection team.

### b. Observations and Findings

No findings of significance were identified.

### c. Conclusion

The NRC inspection team concluded that Lisega is implementing its M&TE program in accordance with the regulatory requirements of Criterion XII of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed and operations observed, the NRC inspection team also determined that Lisega is implementing its policies and procedures associated with the M&TE program. No findings of significance were identified.

## 6. Handling, Storage, and Shipping

### a. Inspection Scope

The NRC inspection team reviewed Lisega's policies and implementing procedures that govern the handling, storage and shipping program to verify compliance with the requirements of Criterion XIII, "Handling, Storage, and Shipping," of Appendix B to 10 CFR Part 50.

The NRC inspection team verified the classification and use of the storage level C and D areas was performed in accordance with Lisega's procedures. The NRC inspection team performed a walk-down of levels C, and D storage areas and verified the control and segregation of stainless steels from carbon steel racks. The NRC inspection team

observed packaging of ASME Section III piping supports and verified that it was performed in accordance with the Code requirements. In addition, the NRC inspection team verified that the temperature in the storage areas was monitored and recorded as required.

The NRC inspection team discussed the handling, storage and shipping program with Lisega's management and technical staff. The attachment to this inspection report lists the documents reviewed by the NRC inspection team.

b. Observations and Findings

No findings of significance were identified.

c. Conclusion

The NRC inspection team concluded that Lisega is implementing its handling, storage and shipping program in accordance with the regulatory requirements of Criterion XIII of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed and operations observed, the NRC inspection team also determined that Lisega is implementing its policies and procedures associated with the handling, storage and shipping program. No findings of significance were identified.

7. Nonconforming Materials, Parts, or Components

a. Inspection Scope

The NRC inspection team reviewed Lisega's policies and implementing procedures that govern the control of nonconformances to verify compliance with the requirements of Criterion XV, "Nonconforming Materials, Parts, or Components," of Appendix B to 10 CFR Part 50.

The NRC inspection team verified that Lisega's nonconformance process provides a link to the 10 CFR Part 21 program. The NRC inspection team performed walk-downs of material storage areas and fabrication and assembly areas to inspect the segregation of nonconforming materials, the control of nonconformance reports (called Variance Reports (VRs)) for ongoing work, and material conditions that could contribute to quality issues. The NRC inspection team also verified that nonconforming materials were properly identified, marked, and segregated, when practical, to ensure that they were not reintroduced into the production processes.

The NRC inspection team reviewed the Nonconforming Report Log for 2015 and 2016 (517 VRs) and selected a sample of 28 for detailed review. For the sample selected the NRC inspection team verified that Lisega: (1) dispositioned the nonconformances, (2) documented an appropriate technical justification for disposition, (3) took adequate action with regard to the nonconforming material or item, and (4) screened identified nonconformances, for 10 CFR Part 21 applicability. The NRC inspection team verified that other processes that could identify nonconformances, receipt inspection, customer feedback, customer returns, used the VR process as appropriate.

The NRC inspection team discussed the nonconformance process with Lisega's management and technical staff. The attachment to this inspection report lists the documents reviewed and personnel interviewed by the NRC inspection team.

b. Observations and Findings

No findings of significance were identified.

c. Conclusion

The NRC inspection team concluded that Lisega is implementing its nonconforming materials, parts, or components program in accordance with the regulatory requirements of Criterion XV of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that Lisega is implementing its policies and procedures associated with the control of nonconforming materials, parts, or components. No findings of significance were identified.

8. Corrective Action

a. Inspection Scope

The NRC inspection team reviewed Lisega's policies and implementing procedures for the Corrective Action Program (CAP) to verify compliance with the requirements of Criterion XVI, "Corrective Action," in Appendix B to 10 CFR Part 50. The NRC inspection team reviewed other processes at Lisega that could identify a condition adverse to quality (such as internal and external audits, review of VRs, and review of trends analysis) to ensure that they used the corrective action process to identify conditions adverse to quality. The NRC inspection team verified that the corrective action process screened for Part 21 reporting, and addressed significant conditions adverse to quality including providing for the determination of cause, action to prevent recurrence and notification of appropriate management.

The NRC inspection team reviewed in detail all 33 Corrective Action Reports (CARs) from 2015 and 2016 to verify Lisega implemented their corrective action process, specifically that conditions adverse to quality were promptly identified and corrected, they were screened for Part 21 reporting, the dispositions appeared appropriate, and verified for the CARs reviewed that none were significant conditions adverse to quality.

The NRC inspection team discussed the CAP with Lisega's management and technical staff. The attachment to this inspection report lists the documents reviewed and personnel interviewed by the NRC inspection team.

b. Observations and Findings

No findings of significance were identified.

c. Conclusion

The NRC inspection team concluded that Lisega is implementing its corrective action program in accordance with the regulatory requirements of Criterion XVI of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that Lisega is implementing its policies and procedures associated with the corrective action program. No findings of significance were identified.

9. Entrance and Exit Meetings

On April 18, 2016, the NRC inspection team discussed the scope of the inspection with Robert Beldyk, General Manager, and other members of Lisega's management and technical staff. On April 22, 2016, the NRC inspection team presented the inspection results and observations during an exit meeting with Mr. Beldyk, and other members of Lisega's management and technical staff. The attachment to this report lists the attendees of the entrance and exit meetings, as well as those individuals whom the NRC inspection team interviewed.

## ATTACHMENT

### 1. ENTRANCE/EXIT MEETING ATTENDEES

<b>Name</b>	<b>Title</b>	<b>Affiliation</b>	<b>Entrance</b>	<b>Exit</b>	<b>Interviewed</b>
Jonathan Ortega-Luciano	Inspection Team Leader	NRC	X	X	
Aixa Belen	Inspector	NRC	X	X	
Tom Kendzia	Inspector	NRC	X	X	
Tim Steadham	Inspector	NRC	X	X	
Kerri Kavanagh	Chief	NRC		X	
Bob Driscoll	DL Manager	Lisega	X		
Bob Fandetti	Director, Nuclear Sales	Lisega	X	X	
Brett Cress	Level 2 Quality Control Technician	Lisega			X
Dave Loveday	Design Supervisor	Lisega			X
Dennis K. Williams	Engineering Manager	Lisega	X		X
Eric Lewanski	Welder Lead	Lisega			X
Greg Christiansen	Source Inspector	WECTEC			X
John Deschenes	Production Control Manager	Lisega			X
Jon Holt	Snubbers Testing Technician	Lisega			X
Kevin Grahl	Welder	Lisega			X
Larry Wolfe	QC inspector	Lisega			X
Lewis Rogers	Quality Assurance Manager	Lisega	X	X	X
Patrick Hooks	QC Supervisor	Lisega			X
Robert Beldyk	General Manager	Lisega	X	X	
Robert Mielke	Quality Engineering Technician	Lisega	X	X	X
Tip Elleson	QC Inspector	Lisega			X
Zara Hoch	Applied Mechanics Engineer	Lisega			X



## 2. INSPECTION PROCEDURES USED

Inspection Procedure (IP) 36100, "Inspection of 10 CFR Part 21 and Programs for Reporting Defects and Noncompliance," dated February 13, 2012.

IP 43002, "Routine Inspections of Nuclear Vendors," dated July 15, 2013.

IP 43004, "Inspection of Commercial-Grade Dedication Programs," dated November 29, 2013.

## 3. DOCUMENTS REVIEWED

### Policies and Procedures

- Quality Assurance Manual (QAM) QAM-1, "Quality Assurance Manual," Edition 1, Revision 4 dated January 17, 2013
- Quality Assurance Procedure (QAP) QAP-2.3, "Qualification and Certification of Nondestructive Examination (NDE) Personnel," Revision 5 dated February 15, 2013.
- QAP-2.4, "Contract Review," Revision 6 dated January 13, 2015
- QAP-2.6, "Qualification of Registered Professional Engineers," Revision 3
- QAP-2.7, "Qualification of Auditors and Lead Auditors," Revision 1 dated January 29, 2007
- QAP-2.9, "Qualification and Certification of Coating Inspection Personnel for Nuclear Applications," Revision 1 dated January 30, 2007
- QAP-3.1, "Design Control for Nuclear Product," Revision 5 dated May 30, 2012
- QAP-3.2, "Dedication of Commercial Grade Items," Revision 6 dated January 28, 2016
- QAP-3.3, "Validation/Verification of Computer Programs," Revision 7 dated January 30, 2015
- QAP-3.5, "Classification of Safety Related Items," Revision 3 dated January 30, 2007
- QAP-6.2, "Drawing Control," Revision 3 dated February 11, 2015
- QAP-7.1, "Procurement Control," Revision 5A dated June 28, 2010
- QAP-7.2, "Vendor Evaluation," Revision 5 dated January 30, 2015
- QAP-7.4, "Annual Supplier Evaluation," Revision 3 dated January 31, 2007
- QAP-7.6, "Supplier Surveillance," Revision 3 dated August 10, 2011
- QAP-7.7, "Dedication of Commercial Material," Revision 3, dated January 30, 2015
- QAP-7.9, "Utilization of Unqualified Source Material," Revision 1 dated October 10, 2006
- QAP-8.1, "Material Identification and Control," Revision 4 dated April 5, 2013.
- QAP-9.1, "Welding Procedure Qualification," Revision 2 dated February 1, 2007.
- QAP-9.2, "Welder Qualification," Revision 2 dated February 1, 2007.
- QAP-12.1, "Control of Measuring and Test Equipment," Revision 6 dated January 15, 2015.
- QAP-13.1, "Handling, Storage and Shipping," Revision 3 dated January 30, 2007.
- QAP-15.1, "Nonconforming Materials, Parts or Components," Revision 3 dated May 12, 2011
- QAP-16-1, "Corrective Action," Revision 5 dated April 30, 2015
- QAP-18.1, "Audits," Revision 6 dated July 17, 2015
- QAP-21.0, "Reporting of Nuclear Defects and Non-Compliance 10 CFR Part 21 and 10 CFR 50.55(e)," Revision 5 dated June 23, 2015
- MP-017, "Lisega Hydraulic Shock Absorbers Series 30: Nameplate Procedure," Revision 0 dated July 24, 2002.

- MP-018, "Lisega: Hydraulic Shock Absorbers Series 30: Paddle Plate Extension and Attachment Flange Removal and Installation," Revision 2 dated June 5, 2003
- Quality Control (QC) QC-001, "Visual Examination of Welds," Revision 4 dated April 16, 2013.
- QC-002, "Visible Dry Magnetic Particle Examination," Revision 4 dated April 17, 2013.
- QC-003, "Liquid Penetrant Examination," Revision 5 dated April 17, 2013.
- QC-004, "Receiving Inspection and Control," Revision 5 dated March 20, 2012.
- QC-004, "Receiving Inspection and Control," Revision 5 dated March 20, 2012
- QC-008, "In-House Calibration of Measuring Equipment," Revision 4 dated December 3, 2015.
- QC-012, "Marking Steel," Revision 5 dated January 25, 2007
- Quality Work Instruction (QWI), QC-002, "Quality Issues Reporting," Revision 4 dated April 17, 2013
- QWI, EN-008, "Creating a Request for Information from Hanger Tracker," Revision 0 dated February 4, 2010

### Drawings

- 33-1161, "Snubber Extension," Revision 0 dated April 13, 2010
- 38-124, "Type 38 Friction Anchor," Revision 1 dated April 16, 2015
- 39-3105 sheets 1 through 4, "Short Strut LG 8," Revision 0 dated January 21, 2015
- 40-1019, "Type 40 Pipe Strap," Revision 5 dated August 6, 2014
- 40-1171 sheets 1 & 2, "U-Bolt for Pipe Clamps (Type 36 and 44)," Revision 3 dated March 28, 2013
- 44-6649, "Type 44 Pipe Clamp," Revision 4 dated May 3, 2013
- APP-PCS-PH-12R23241, "Passive Containment Cooling System (PCS) Support," Revision 1 dated October 9, 2014
- APP-PSS-PH-12R66711, "Primary Sampling System Support," Revision 0 dated December 23, 2014
- APP-PXS-PH-11R0647, "Passive Core Cooling System (PXS) Support," Revision 1 dated July 16, 2013
- APP-RCS-PH-11R0407, "Recovery Steam System Support," Revision 1
- APP-RCS-PH-11R22091, "Reactor Coolant System (RCS) Support," Revision 1 dated September 23, 2014
- APP-RNS-PH-12R2025, "Residual Heat Removal System Support," Revision 3
- APP-VES-PH-12R0711, "Main Control Room Emergency Habitability System (VES) Support," Revision 3

### Design Documents

- CD38-155, "Type 38 Friction Anchor Design Report Summary," Revision 0 dated June 11, 2015
- DR38-10009, "Type 38 Friction Anchor Design Report," Revision 0 dated July 1, 2015
- DS38-1, "ASME Class I Design Specification for Lisega Type 38 Friction Anchor," Revision 0 dated April 16, 2015
- CD44-198, "Type 44 Pipe Clamp Design Report Summary," Revision 0 dated January 23, 2015
- DR44-8014, "Type 44 Pipe Clamp Design Report for Lisega P/N 442763," Revision 0 dated January 23, 2015
- DS44-1, "ASME Class I Design Specification for Lisega Type 44 Pipe Clamp," Revision 0 dated January 31, 2014

- CD40-177, "Type 40 Pipe Clamp Design Report Summary," Revision 1 dated September 30, 2014
- DR40-10029, "ASME Class I Design Report for Lisega P/N 2-400164," Revision 0 dated September 10, 2014
- DR40-10030, "ASME Class I Design Report for Lisega P/N 2-400264," Revision 0 dated September 11, 2014
- DR40-10029, "ASME Class I Design Report for Lisega P/N 2-400364," Revision 1 dated February 7, 2014
- DS40-200, "ASME Class I Design Specification for Lisega Type 40 Pipe Clamp," Revision 1 dated January 31, 2014
- CD39-242, "Type 39 Rigid Strut Design Report Summary," Revision 1 dated June 4, 2015
- DR34-7701, "ASME Class I Design Report for Lisega Dynamic Paddles for Rigid Struts (Load group 8)," Revision 1 dated May 29, 2015
- DS39-100, "ASME Class I Design Specification for Lisega Type 39 Rigid Strut," Revision 2 dated May 4, 2015
- Westinghouse Specification APP-PH02-Z0-001, "AP1000 ASME Section III Class 1, 2, and 3 and Seismic Category II Pipe Supports/Tubing Supports/Instrument Rack Supports," Revision 2 dated December 15, 2015
- Westinghouse Specification APP-PH02-Z0-002, "AP1000 ASME Section III Class 1, 2, and 3 Pipe Supports/Tubing Supports," Revision 4 dated December 31, 2015
- CB&I Specification Addendum APP-PH02-Z0-002-R2-ADD, "ASME Pipe Support/Tubing Support Fabrication and Installation Supplemental Information," Revision 6 dated October 14, 2015

#### Calibration, Inspection and Test Reports

- Calibration Certificate LCI016-16-02-04638-2, Temperature and Humidity Meter No. 2-QCG-0571, dated February 11, 2016
- Calibration Certificate LCI016-16-02-05398-6, Threaded Plug Gage No. 2-QCG-0377, dated February 19, 2016
- Calibration Certificate LCI016-13-12-47087-36 Calibration Certificate from Laboratory Testing Inc. dated January 13, 2014
- Calibration Certificate LCI016-16-02-05398-1 for QCG-0591, Digital AC/DC Clamp on meter, dated February 16, 2016
- Calibration Certificate LCI016-15-06-20705-10 for QCG-0576, Digital Thermometer with probe, dated June 10, 2015
- Calibration Certificate LCI016-16-02-04638-1 for QCG-0308, Digital Light meter, dated February 16, 2016
- Calibration Certificate LCI016-15-06-21358-1 for QCG-0583, Wireless RH/Temperature Transmitter, dated June 17, 2015
- Magnetic Particle Examination Report for Project No. 51861, Fabrication Order No. 609213 for Vogtle Unit 3, Item 10, dated April 18, 2016
- Liquid Penetrant Examination Report for Project No. 51859, Fabrication Order No. 607657 for VC Summer Unit 3, Item 44, dated April 19, 2016
- Receipt Inspection Report for U-Bolt for Pipe Clamps with Trace Code A7438, dated April 20, 2016
- Lisega In-House Calibration Record for QCG-0544, Coating Thickness Gage, dated August 26, 2015
- Lisega In-House Calibration Record for QCG-0544, Coating Thickness Gage, dated April 21, 2016

- Lisega In-House Calibration Record for QCG-0604, Caliper 8" Digital, dated October 15, 2015
- Kalibrier-Zertifikat Calibration Certificate 1422818 for QCG-0514, Go Ring Gage, dated August 4, 2014
- Kalibrier-Zertifikat Calibration Certificate 1422815 for QCG-0517, No-Go Ring Gage, dated August 4, 2014
- Certificate of Conformance (C of C) for Magnaflux 8A Red powder for batch number 15B103 and PO No. 154074, dated February 24, 2015
- Mid-South Nuclear, Inc. C of C and CMTR for SA516 Gr 70, SA299, A572 Gr50 and SA299 plates, trace code A7259, PO number 154074, dated October 13, 2015
- Mid-South Nuclear, Inc. C of C and CMTR for SE3387, trace code A7130, PO No. 152934, dated August 6, 2015
- Chatam Steel Corporation C of C and CMTR # 09-23-2015-135652-1 for trace code A7254, PO No. 153985, dated September 24, 2015
- Chatam Steel Corporation C of C and CMTR # 08-25-2015-121503-1 for trace code A7209-1, PO No. 153448, dated August 25, 2015
- Chatam Steel Corporation C of C and CMTR # 01-20-2015-009672-1 for trace code A6775-18, PO No. 145663, dated January 20, 2015
- Weldstar C of C # 148900, weld rod, for trace code A7232-1, PO No. 154842, dated November 28, 2015

#### Purchase Orders (PO)

- 152489, Revision 0, Lisega PO to Chatham Steel for ASME Material, dated June 10, 2015
- 152931, Revision 2, Lisega PO to Mid-South Nuclear for ASME Material, dated September 3, 2015
- 152933, Revision 1, Lisega PO to Mid-South Nuclear for ASME Material, dated August 17, 2015
- 152934, Revision 1, Lisega PO to Mid-South Nuclear for ASME Material, dated August 17, 2015
- 153740, Revision 0, Lisega PO to Hemco Gage Sales for Calibration Certification, dated August 28, 2015
- 153763, Revision 1, Lisega PO to Mid-South Nuclear for ASME Material, dated September 29, 2015
- 153985, Revision 0, Lisega PO to Chatham Steel for ASME Material, dated September 11, 2015
- 154494 to Global Quality Assurance Inc. Revision 0 dated October 12, 2015
- 154701, Revision 1, Lisega PO to Mid-South Nuclear for ASME Material, dated November 24, 2015
- 155331, Revision 0, Lisega PO to Laboratory Testing Inc. for Calibration Certification, dated December 10, 2015
- 155522, Revision 1, Lisega PO to Mid-South Nuclear for ASME Material, dated January 19, 2016
- 160013, Revision 0, Lisega PO to Laboratory Testing Inc. for Calibration Certification, dated January 5, 2016
- 160022, Revision 2, Lisega PO to Hemco Gage Sales for Calibration Certification, dated March 10, 2016
- 160267, Revision 0, Lisega PO to Mid-South Nuclear for ASME Material, dated January 20, 2016

- 160533, Revision 0, Lisega PO to Mid-South Nuclear for PQR Test Coupon, dated February 10, 2016
- 160616, Revision 0, Lisega PO to Chatham Steel for ASME Material, dated February 17, 2016

#### Audits and Supplier Evaluations

- Audit # 14-INT-001, "Internal Audit of LISEGA INC," dated December 16, 2014
- Audit # 15-INT-001, "Internal Audit of LISEGA INC," dated November 10, 2015
- Laboratory Inc. NIAC Audit #18079 Review dated September 10, 2013
- Supplier Evaluation of Laboratory Testing Inc., dated August 10, 2015
- Supplier Evaluation of Laboratory Testing Inc., dated August 12, 2014
- Supplier Evaluation of Laboratory Testing Inc., dated August 9, 2013
- Nuclear Industry Assessment Committee Audit Checklist of Laboratory Testing Inc. Audit # 18079, dated December 18, 2013
- Nuclear Industry Assessment Committee Audit Checklist of Laboratory Testing Inc. Audit # 18079, dated September 8, 2013
- Nuclear Industry Assessment Committee Calibration Checklist of Laboratory Testing Inc. Audit # 18079, dated September 8, 2013
- 21093, Chatham Steel Triennial Audit, dated March 31, 2016
- Carboline – Lake Charles Annual Audit, dated April 1, 2016
- 20073, Carboline – Lake Charles Triennial Audit, dated March 31, 2015
- Carboline – Green Bay Annual Audit, dated April 1, 2016
- 20130, Carboline – Green Bay Triennial Audit, dated March 31, 2015
- Carboline – St. Louis Annual Audit, dated April 1, 2016
- 20006, Carboline – St. Louis Triennial Audit, dated March 31, 2015
- 21040, MetalTek/Mackson Triennial Audit, dated March 4, 2016
- 21033, Weldstar Triennial Audit, dated March 30, 2016
- Mid-South Nuclear Annual Audit, dated April 1, 2016
- Mid-South Nuclear Annual Audit, dated March 6, 2015
- 14-SUP-001, Mid-South Nuclear Triennial Audit, dated February 26, 2014
- Applied Technical Services Annual Audit, dated March 6, 2015
- 14-01, Applied Technical Services Triennial Audit, dated February 3, 2014

#### Nonconformance Reports/Variance Report (VR)

1876-6-D115, 1887-6-D415, 1918-6-D415, 1936-6-D415, 1943-6-D415, 1970-6-D415, 1973-6-D415, 1985-6-D-415, 2003-6-D415, 2027-6-D415, 2039-6-D415, 2044-6-D415, 2073-6-D415, 2084-6-D415, 2112-6-D415, 2121-6-D415, 2142-6-D415, 2156-6-D415, 2182-6-D415, 2200-6-D415, 2208-6-D415, 2232-6-D415, 2242-6-B415, 2265-6-D415, 2278-6-D415, 2278-6-D415, 2308-6-D415, 2374-6-D416, 2378-6-D416, 2449-6-D416, 2451-6-D216, 2462-6-D416, 2466-6D416

#### Corrective Action Request

14-041, 14-042, 14-043, 15-001, 15-002, 15-003, 15-004, 15-005, 15-006, 15-007, 15-008, 15-009, 15-010, 15-011, 15-012, 15-013, 15-014, 15-015, 15-016, 15-017, 15-018, 15-019, 15-020, 15-021, 15-022, 15-023, 15-024, 15-025, 15-026, 15-027, 15-028, 16-001, 16-002, 16-003, 16-004, 16-005

Corrective Action Request Opened During the Inspection:

16-006, 16-007, 16-008

Miscellaneous

- Lead Auditor Qualifications for E. L. Rogers
- Lead Auditor Qualifications for William Guerra
- Lead Auditor Qualifications for Lars Bohl
- Registered Professional Engineer record for W. J. Bees
- Registered Professional Engineer record for D. K. Williams
- Coating Inspector Level-II qualification for Brett Cress
- Coating Inspector Level-II qualification for Robert Murell
- Coating Inspector Level-III qualification for Anthony Belk
- Coating Inspector Level-III qualification for Michael Durbin
- Coating Inspector Level-III qualification for Bryan Monteon
- Level II Nondestructive qualification for Larry Wolfe
- Level II Nondestructive qualification for Larry Henderson
- Level II Nondestructive qualification for Timothy Newman
- Level II Nondestructive qualification for Brett Cress
- Level III Nondestructive qualification for Richard Alexander
- Level II Inspector qualification for Richard Alexander
- Memorandum from Lewis Rogers, "NDE Level III Qualification of NDE Procedure QC-001, Visual Examination, Revision 4," dated October 9, 2014.
- Memorandum from Lewis Rogers, "NDE Level III Qualification of NDE Procedure QC-002, Visual Dry Magnetic Particle Examination, Revision 4," dated October 9, 2014.
- Memorandum from Lewis Rogers, "NDE Level III Qualification of NDE Procedure QC-003, Liquid Penetrant Examination, Revision 5," dated October 9, 2014.
- Traveler for Residual Heat Removal System Support for Project No. 51861, Fabrication Order No. 608886, Item 2 for Vogtle Unit 3
- Welder Qualification Record for Kevin Grahl
- Welder Qualification Record for Eric Lewanski
- Traveler for Primary Sampling System Support for Project No. 51861, Fabrication Order No. 609209 for Vogtle Unit 3
- Traveler for a Main Control Room Emergency Habitability System (VES) support, Project No. 51861, Fabrication Order No 609265 for Vogtle Unit 3
- Traveler for a Passive Core Cooling System support, Project No. 51859, Fabrication Order No. 607657 Item 44, for VC Summer Unit 3
- Traveler for reactor coolant system pipe support, Project No. 51861, Fabrication Order No. 609213 for Vogtle Unit 3
- Traveler for a Hydraulic Snubber Assembly, Project No. 56336, Fabrication Order No. 605889, for Waterford Nuclear Power Plant
- Final Traveler for reactor coolant system pipe support, Project No. 5185946, Fabrication Order No. 612305 for Vogtle Unit 4
- Final traveler for passive containment cooling system pipe support, Project No. 51857, Fabrication Order No. 606802 for VC Summer Unit 2
- Fabrication Order No. 603843, Order No. STK-2494 for Vogtle Unit 3 SV3-PCS-PH-12R0052, Part No. 2-401164 Pipe Strap 4" 40-1019, dated March 16, 2016

- Fabrication Order No. 537548, Order No. 51859T for V.C. Summer Unit 3 VS3-PXS-PH-11R0006, Part No. 398059-E575 Short Strut LG 8 39-3105, dated February 2, 2016
- Fabrication Order No. 611055, Order No. STK-2450 for VC Summer Unit 3 VS3-SGS-PH-12A3331, Part No. 380318-F Friction Anchor 38-124, dated April 14, 2016
- Fabrication Order No. 540173, Order No. 51862AP for Vogtle Unit 4 SV4-RNS-PH-12V01641, Part No. 442763 Yoke Clamp 44-6649, dated February 15, 2016
- Welding Material Issue Log by Welder for Robert Zolna, Cody Blanchard, Richard Stinson, Eric Lewanski, Kevin Grahl, and Tyler Steelman
- Welding Machine Performance Check for QCG-0348, QCG-0582, QCG-0334, QCG-0346, QCG-0347, QCG-0345, QCG-0058, QCG-0063, QCG-0349, dated January 4, 2016.
- Procedure Qualification Record (PQR) for WS-P1-P1, Spray 1, Revision 0 dated September 16, 1998
- PQR for WS-P1-P1, Spray 1-1-2, Revision 0 dated October 20, 2004
- PQR for WS-P1-P1, Spray 1-1-4, Revision 0 dated December 7, 2015
- PQR for WS-P1-P1, Spray 1-1-5, Revision 0 dated December 7, 2015