

July 5, 2011

Ms. Tara Werner
Areva NP Inc.
3315 Old Forest Road
Lynchburg, VA 24506

SUBJECT: NRC INSPECTION REPORT NO. 99901359/2011-201 AND NOTICE OF
NONCONFORMANCE

Dear Ms. Werner:

From June 6 to June 8, 2011, the U.S. Nuclear Regulatory Commission (NRC) conducted an inspection at the Areva NP (Areva) facility in Lynchburg, Virginia. This was a limited scope inspection, which focused on assessing your compliance with selected portions of Appendix B to 10 CFR Part 50, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants." The enclosed report presents the results of this 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. The NRC inspectors noted one Nonconformance with two examples. The examples identified were for; 1) Areva's failure to adequately evaluate how Flowserve-Limitorque's commercial-grade dedication survey ensured all critical characteristics of a Peerless-Winsmith motor were verified, and 2) Areva's failure to perform an adequate source inspection of Flowserve-Limitorque's final acceptance process for a Peerless-Winsmith motor. The specific finding and references to the pertinent requirements are identified in the enclosures to this letter.

Please provide a written explanation or statement within 30 days of this letter in accordance with the instructions specified in the enclosed Notice of Nonconformance.

In accordance with 10 CFR 2.390 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 (ADAMS), 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

Ms. T. Werner

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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.

Sincerely,

/RA/

Patrick L. Hiland, Director
Division of Engineering
Office of Nuclear Reactor Regulation

Docket No.: 99901359

Enclosures: 1. Notice of Nonconformance
2. Inspection Report 99901359/2011-201

Ms. T. Werner

- 2 -

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Sincerely,

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Patrick L. Hiland, Director
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NOTICE OF NONCONFORMANCE

Areva NP Inc.
3315 Old Forest Road
Lynchburg, VA 24506

Inspection Report 99901359/2011-201
Docket No. 99901359

Based on the results of a Nuclear Regulatory Commission (NRC) inspection conducted June 6 to June 8, 2011, of activities performed at Areva NP Inc. (Areva), certain activities were not conducted in accordance with NRC requirements, which were contractually imposed upon Areva by NRC licensees.

- A. Criterion VII, "Control of Purchased Material, Equipment, and Services," of Appendix B to 10 CFR Part 50, states in part that, "Measures shall be established to assure that purchased material, equipment, and services, whether purchased directly or through contractors and subcontractors, conform to the procurement documents. These measures shall include provisions, as appropriate, for source evaluation and selection, objective evidence of quality furnished by the contractor or subcontractor, inspection at the contractor or subcontractor source, and examination of products upon delivery."

Section 7, "Control of Purchase Material, Items and Services," of Areva Inc. Quality Assurance Program 56-9141754-000, dated August 15, 2010, states in part that; "This section governs the control of purchased safety-related materials, items and services including source evaluation and selection, source inspection, and receiving inspection in accordance with regulatory and contract requirements. This section complies with Section VII of 10 CFR 50, Appendix B, Control of Purchased Material, Equipment, and Services and Requirement 7, Control of Purchased Items and Services, ASME NQA-1 1994, 2000, 2004, and 2008 with 2009 addenda."

Areva Document 54-1218521-009, "Verification Criteria for Flowserve/Limitorque Replacement Parts, Motors & Actuators," dated March 16, 2010, Section II, "General" paragraph A, states in part that:

"In addition to the individual criteria identified in Section V and where individual criteria has not been established for a particular item, all items will require the following verification, to be documented on a Quality Control Surveillance Report (QCSR-Form 21166)."

Contrary to the above, as of June 8, 2011:

Areva's controls for the procurement of a Peerless-Winsmith (Peerless) motor ordered by Cooper Nuclear Station under Purchase Order No. 4500129677 were inadequate:

1. Areva document 54-1218521-009 failed to ensure that equipment purchased through a contractor conformed to the PO by verifying that Flowserve-Limitorque had appropriate provisions for the commercial-grade dedication of a Peerless motor. Specifically, Areva's audit of the contractor's dedication did not verify that the critical

ENCLOSURE 1

characteristics of the following components were verified; 1) varnish, 2) commutator, and 3) springs.

2. Areva's visual source inspection of the Peerless motor from Flowserve-Limitorque was inadequate. Specifically, the source inspection failed to note a number of discrepancies subsequently identified by the licensee. These discrepancies included: areas where the paint was touched up; there was surface rust on the flange; and exposed threaded ends that were worn away due to excessive shot blasting to the extent that there were marginal threads remaining.

This issue has been identified as Nonconformance 99901359/2011-201-01.

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 Director, Division of Engineering, 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 non-compliances; and (4) the date when your corrective action will be completed. Where good cause is shown, consideration will be given to 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 (ADAMS), 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.

Dated this 5th day of July 2011.

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
DIVISION OF ENGINEERING
VENDOR INSPECTION REPORT

Docket No.: 99901359

Report No.: 99901359/2011-201

Vendor: Areva NP Inc.
3315 Old Forest Road
Lynchburg, VA 24506

Vendor Contact: Tara Werner
Manager, Quality Programs
Phone: (434) 832-3353
tara.werner@areva.com

Nuclear Industry Activity: The Areva NP Inc. facility in Lynchburg, VA supplies valve actuators and associated replacement components to the commercial nuclear power industry.

Inspection Dates: June 6 – June 8, 2011

Inspection Team Leader: Paul Prescott, EQVB/DE/NRR

Inspectors: Jonathan Ortega-Luciano, EQVB/DE/NRR

Approved by: Martin C. Murphy, Branch Chief
Quality & Vendor Branch
Division of Engineering
Office of Nuclear Reactor Regulation

ENCLOSURE 2

EXECUTIVE SUMMARY

Areva NP
99901359/2011-201

The purpose of this inspection was to review selected portions of Areva NP (Areva) quality assurance (QA) program. The inspectors focused on Areva's activities in the area of commercial-grade dedication of replacement parts to NRC-licensed facilities. The inspection was conducted at Areva's facility in Lynchburg, Virginia. The NRC inspection base was:

- Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Part 50 of Title 10 of the Code of Federal Regulations.

The previous NRC inspection of Areva's facility in Lynchburg, VA was in 2007. The results of this most recent inspection are summarized below.

Control of Purchased Material, Equipment, and Services

The inspectors identified Nonconformance 99901359/2011-201-01 with two examples. The first example was cited for Areva's failure to ensure that equipment purchased through Flowserve-Limitorque conformed to the PO by verifying that a sub-supplier had appropriate provisions for the commercial-grade dedication of a Peerless-Winsmith motor. The second example was cited for Areva's failure to conduct an adequate source inspection of Flowserve-Limitorque's final acceptance process for a Peerless motor.

REPORT DETAILS

1. Control of Purchased Material, Equipment, and Services

a. Inspection Scope

The inspectors reviewed the policies and procedures that govern the implementation of Areva's processes for verifying compliance with Criterion VII, "Control of Purchased Material, Equipment, and Services," and Criterion XVIII, "Audits," of Appendix B to 10 CFR Part 50. Specifically, the inspectors reviewed the procurement and commercial-grade dedication activities associated with Cooper Nuclear Station's (CNS's) Purchase Order (PO) No. 4500129677, for a Peerless-Winsmith (Peerless) 10 foot-pound, 1900 revolutions per minute (rpm), 125 volt-direct current (VDC) electric motor for a Limitorque SMB 00/0 valve actuator. During CNS's performance of the receipt inspection the motor was considered to be unacceptable, due to its exterior condition. The CNS's Condition Report (CR) CR-CNS-2011-05678 stated there was "evidence of previous use and obvious attempts to make the motor appear to be new." As documented by the CR, the motor had what looked like a brand new nameplate and appeared to be freshly painted. There appeared to be areas where the paint was touched up. The flange area around the leads appeared to have surface rust. The threaded studs and hex nuts that secure the front and rear housing appeared to have been grit blasted prior to being painted. Areas of the exposed threaded ends appeared worn away to the extent that there were marginal threads remaining. The inspectors reviewed the following documents associated with Areva's procurement activities:

- "Areva Inc. Quality Assurance Program 56-9141754-000", dated August 15, 2010
- Quality Assurance Procedure – QAP 9.1, "Paint Procedure," Revision 16
- Limitorque Paint Specifications – LPS 102A, "Carbozinc#11 – Nuclear," Revision 9
- Limitorque Paint specifications – LPS 102B, "Carboguard 890 N-Heavy Duty Epoxy Top Coat-Blue or Gray," Revision 8
- Quality Assurance Procedures – QAP 10.4, "Procedure for Certificate of Compliance," Revision 4
- Quality Control Procedures – QCP 10.5, "Inspection Of Safety Related Nuclear service Units And Parts Orders," Revision 11
- Quality Control Procedures – QCP 10.10, "Commercial Grade Dedication," Revision 8
- Evaluation Critical Components List – ECC 0001, "Safety Related Actuator Critical Components Evaluation and Listing," Revision 5
- Inspection Plan – IP 10.111, "Peerless-Winsmith Critical Component Material Testing," Revision 8
- Noncritical Justification Sheets Revisions, dated May 27, 1992
- Critical Characteristic Justification Table, dated May 17, 1993
- Critical Characteristic Selection Justification Table, dated May 21, 1993
- Flowserve-Limitorque Commercial Grade Survey Letter to Peerless-Winsmith dated September 7, 2010

ENCLOSURE 3

- Flowserve-Limitorque Audit Report, Audit Report Number 2010-03-E, dated September 24, 2010

b. Observations and Findings

The inspectors' review of PO No. 4500129677 from CNS to Areva, noted that the motor was being procured as new and safety-related. CNS directly procured the motor from the Areva NP Inc. (Areva) facility in Lynchburg, Virginia. Areva maintains a warehouse of complete Limitorque valve actuator units and associated spare parts. Areva procures the Limitorque valve actuators and spare parts from Flowserve-Limitorque, which also has a facility in Lynchburg, Virginia. Areva and Flowserve-Limitorque are both Appendix B suppliers.

Areva issued PO No. 1010017612 to Flowserve-Limitorque to procure a safety-related Peerless 125 VDC replacement motor for a Limitorque SMB 00/0 valve actuator. As a result of Areva's request, Flowserve-Limitorque generated PO No. 177557, to procure a commercial motor from Peerless, located in Warren, Ohio and dedicated it. The inspectors reviewed both vendors' activities associated with the procurement of the motor from Peerless. Peerless is categorized as a commercial supplier under Flowserve-Limitorque's approved suppliers list.

As part of their dedication process, Flowserve-Limitorque performed a commercial-grade survey (survey) of Peerless. The last survey was conducted on September 13-14, 2010, in accordance with QCP 10.10. Step 6.12, "Electric Motors," of QCP 10.10, states in part that, "Peerless-Winsmith motors will be dedicated in accordance with IP-10.111, Peerless-Winsmith Critical Component Material Testing and section 8.2, Direct Current (DC) Motors of QAP-10.4, the procedure for documenting a certificate of compliance. In addition, Peerless-Winsmith will have a commercial-grade survey performed triennially in accordance with the critical characteristics as delineated in IP 10.111, Peerless-Winsmith Critical Component Material Testing on form L 3411." The scope of the survey addressed how Flowserve-Limitorque evaluated the critical characteristics (CCs) of the products and services provided by Peerless, which included: test voltage and motor test data, full load speed (RPM) on the motor test data, full load current (amperes) on the motor test data, verification of material listed under section 5.1.1 of Inspection Plan IP 10.111, verification of lot control of material listed under section 5.1.1 of IP 10.111, and included the supporting survey information. As a result of the survey, Flowserve-Limitorque identified one deficiency. A formal response was submitted by Peerless and Flowserve-Limitorque found it to be acceptable based on the objective evidence provided.

The inspectors reviewed the design specification document for the Peerless motor (IP 10.111) to verify the adequacy of the survey performed by Flowserve-Limitorque on Peerless. The purpose of IP 10.111 is to provide a method of dedication of nonmetallic materials identified as critical on the Peerless Noncritical Component Justification Sheets. During the review, the inspectors noted that under Section 4.0, "Reference," of IP 10.111, was a list of technical documents used to develop IP 10.111. The inspectors reviewed several documents from the reference list to ensure Flowserve-Limitorque was verifying all the CCs required by these documents that were originally generated by

Limatorque engineers. Specifically, the inspectors reviewed the following documents: "Noncritical Justification Sheets Revisions," dated May 27, 1992; "Critical Characteristic Justification Table," dated May 17, 1993; and "Critical Characteristic Selection Justification Table," dated May 21, 1993. The inspectors identified that IP 10.111, used by Flowserve-Limatorque to dedicate the Peerless motors, did not include several identified CCs, as listed in the three documents. As a result, the September 13-14, 2010, Flowserve-Limatorque survey of Peerless did not verify that the vendor provided controls for the CCs of the following material and parts for the motor: 1) varnish, 2) commutator, and 3) springs. This was identified as one example of Nonconformance 9901359/2011-201-01 for Areva's failure to ensure that equipment purchased through a contractor conformed to the procurement document by verifying that the contractor had appropriate dedication controls in place.

As part of the process to accept this motor, Areva conducts a source surveillance at Flowserve-Limatorque. An Areva inspector uses document 54-1218521-009, "Verification Criteria for Flowserve-Limatorque Replacement Parts, Motors and Actuators," dated March 16, 2010. The document establishes the verification criteria for surveillance activities at Flowserve-Limatorque on safety-related parts, motors and actuators purchased by Areva's Nuclear Parts Center (NPC). The source surveillance requires the Areva inspector to visually inspect the motor, review the Certificate of Conformance (CoC) ensuring Flowserve-Limatorque's final inspection is adequately conducted, inspecting the adequacy of the zinc coating of paint that is done to the motor's exterior by Flowserve-Limatorque for environmental qualification purposes, and verifying performance by Flowserve-Limatorque of critical dimensional checks to the latest drawing revision.

There are two forms that document the Areva inspector's results. Form 21166A-15, "Quality Control Surveillance Report," (QCSR) dated April 7, 2006, and Form 22378-5, "Limatorque Motor QCS [Quality Control Surveillance] Checklist," dated May 6, 2010, record the motor data, material condition and measuring and test equipment used. Also noted would be any discrepant material report (DMR). For this motor, a DMR was dispositioned by Flowserve-Limatorque engineering for a small dent on the shaft. Engineering concluded the dent did not affect the fit-up of the shaft with its mating surface in the valve actuator.

The inspectors reviewed Areva's activities and documents associated with receipt inspection of the motor. Administrative Procedure (AP) 1705-03, "Quality Assurance Data Packages and Certificates of Conformance," Revision 29, dated December 10, 2010, provided guidance on the preparation and processing of QA data packages and CoCs for safety-related or American Society of Mechanical Engineers (ASME) Section III items and/or services. The procedure contained requirements for processing supplier and customer QAPDs and CoCs. Operating Instruction (OI) 1197, "Receiving Items for Contract/Inventory (1005-01)," Revision 26, dated November 12, 2010, was used in conjunction with AP 1705-03 to provide instructions for receipt and receipt inspection of material at the NPC. The procedure also contained guidance for recognition of counterfeit, fraudulent or substandard parts. The inspectors' review of the receipt inspection process did not identify any findings of significance.

As required, Areva performed an audit of Flowserve-Limitorque's quality program. The last audit was conducted on September 20-23, 2010. There were six findings. The inspectors reviewed the audit and associated documentation closing the findings. No findings of significance were noted.

To verify implementation of Areva's process the inspectors visited the Flowserve-Limitorque facility in Lynchburg, VA. The inspectors asked the Flowserve-Limitorque QA Engineer to explain the dedication process. The inspectors also interviewed the individual responsible for the receipt inspection activities associated with this motor and had a similar motor receipt inspected while the activity was observed. Additionally, the inspectors observed and interviewed the personnel responsible for the painting and QC inspection of the Peerless motors. During the demonstration at the Painting Station the inspectors asked the Flowserve-Limitorque personnel involved in the process how the motor surface was prepared for painting. Flowserve-Limitorque uses the shot blasting method with steel shot to prepare the surface before applying the protective coating. The personnel operating the shot blasting machine and the QC inspector explained how the surface is prepared before the application of the protective coating to the inspectors and for how long the shot blasting is applied. The explanations from the personnel responsible for the shot blasting were not consistent regarding the time allotted to shot blast a part, in this case a Peerless motor. Because of the discrepancy in the shot blast time the NRC inspectors interviewed the Shipping Receiving Manager (manager), who is responsible of the shot blasting operation, to find out what was the correct time. The manager explained that the motors are placed in the shot blasting machine in increments of 2 minutes until the paint has been stripped from the motor. The manager's response to the inspectors was different from the shot blast machine operators and the QC inspector. The NRC inspectors asked the machine operators and the QC inspector if there was a procedure for the shot blast operation and if training was provided to personnel before they can operate the shot blast machine. The operators and QC inspector responded that there was no procedure documenting the process of how to shot blast a part.

The next step in the process is the protective coating. After the motor is coated it takes approximately 24 hours to dry and then it goes to the QC inspector to verify that the thickness of the coating is within the required specifications. The QC inspector verifies the thickness of the coating in accordance with LPS 102A.

During the review of procedure LPS 102A the inspectors found that under Section "Surface Preparation," Flowserve-Limitorque referenced procedure QAP 9.1. QAP 9.1 explains the process of how to use the shot blasting machine and how the operator needs to be qualified before he/she is allowed to operate the machine. Additionally, QAP 9.1 contains the requirements for surface preparation and finish coating of Limitorque actuators and parts. The procedure covers the types of surface preparation, paint system, equipment for coating, certification for blasting, and inspection/verification performed by the Flowserve-Limitorque personnel. Step 12.0, "Preparation of Unit/part" of QAP 9.1, explains the process to be followed in order to prepare the unit/part before it goes into the shot blasting machine. Also, Step 13.2, "Sanblast and Shotblast," explains the process that Flowserve-Limitorque uses to qualify the personnel before they are

allowed to operate the shot blast machines. The results of the assessment are recorded in the Shot Blast Qualification Form, L-760.

The inspectors found that Flowserve-Limitorque had only one certified operator for the shot blast machine. The inspectors asked for the Form L-760 and verified that the operator was qualified. The inspectors concluded that the Flowserve-Limitorque personnel failed to follow the shot blasting process as specified in QAP 9.1. The inspectors also determined that because of inadequate process implementation for shot blasting, the Peerless motor end-bell stud's exposed threaded ends had marginal threads remaining, due to excessive shot blasting. The inspectors determined that Areva's source inspection of the Peerless motor from Flowserve-Limitorque was inadequate. Specifically, the source inspection failed to note a number of discrepancies subsequently identified by the licensee. These discrepancies included: areas where the paint was touched up, there was surface rust on the flange, and there was marginal threads remaining on the end-bell studs. This is another example of Nonconformance 9901359/2011-201-01, where Areva failed to perform an adequate source inspection to assure that equipment purchased through a contractor conforms to the procurement document by verifying that the contractor have appropriate provisions.

c. Conclusion

The inspectors identified Nonconformance 99901359/2011-201-01 with two examples. The examples identified were for; 1) Areva's failure to ensure that that equipment purchased through Flowserve-Limitorque conformed to the PO by verifying that a sub-supplier had appropriate provisions for the commercial-grade dedication of a Peerless motor, and 2) Areva's failure to conduct an adequate source inspection of Flowserve-Limitorque's final acceptance for a Peerless motor. With the exception of the Nonconformance noted above, the inspectors concluded that the provisions of the Arevas' QAP for control of purchased material, equipment, and services and associated implementing procedures are consistent with the regulatory requirements Criterion VII, "Control of Purchased Material, Equipment, and Services," and Criterion XVIII, "Audits," of Appendix B to 10 CFR Part 50.

2. Exit Meeting

On June 8, 2011, the inspectors presented the inspection scope and findings during an exit meeting with Ms. Tara Werner, Manager of Quality Programs, the VP of Quality programs, the VP of Nuclear Part Center, and other Areva personnel.

ATTACHMENT

1. PERSONS CONTACTED

<u>Name</u>	<u>Title</u>	<u>Entrance</u>	<u>Exit</u>
K. Sowers	QA/QC Lead NPC	x	x
J.D. Mayberry	Manager I&MC	x	x
K. Pinkowski	Quality Specialist	x	x
G. Cleveland	NPC–Product Engineer	x	x
F. Starr	Quality Specialist	x	x
P. Salas	Regulatory Affairs Manager	x	
S. Chesnut	VP Quality	x	x
S. Hellman	VP Nuclear Part Center	x	
M. Cox	Manager Audit Program	x	x
H. Prasse	Manager Operations Support	x	x
J. Bartleman	Manager Corrective Action Program	x	
T. Werner	Manager Quality Programs	x	x
V. Montalbano	Manager Quality Operations		x

2. INSPECTION PROCEDURES USED

- IP 43003, “Reactive Inspections of Nuclear Vendors.”

3. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

The NRC conducted its previous inspection of Areva NP Inc., Lynchburg, VA on November 7, 2007. There were no remaining open items from that inspection.

The following issue was identified during this inspection.

<u>Item Number</u>	<u>Status</u>	<u>Type</u>	<u>Description</u>
99901359/2011-201-01	Opened	NON	Criterion VII