

SQL 09-020

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August 28, 2009

Mr. Chuck Rogers  
Division Manager QA and Safety  
14450 John F. Kennedy Blvd.  
Houston TX 77032

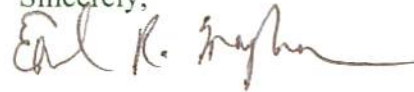
Dear Mr. Rogers:

**CLOSURE of  
AUGUST 2007 NUPIC JOINT UTILITIES AUDIT OF  
CAMERON MEASUREMENT SYSTEM  
CITY OF INDUSTRY, CA**

The August 2007 NUPIC Joint Utilities Audit of Cameron Measurements Systems audit and associated Requests for Corrective Action (RCA's) have been closed. The audit, led by AmerenUE, resulted in the initiation of fifteen (15) Requests for Corrective Action. Cameron provided acceptable responses and completed extensive corrective actions to address the findings. As a result of corrective actions and verification of the implementation of these corrective actions, the audit and 15 RCA's have been closed. In addition, Cameron has been reactivated on the AmerenUE Qualified Suppliers List with a "Conditional" approval status. A copy of the closeout report is attached which describes the conditional approval and actions recommended going forward. Please note a copy of the audit closeout report will be distributed to NUPIC member utilities and the Nuclear Regulatory Commission.

On behalf of the team, thank you for the cooperation and courtesy extended to us during the corrective action phase of the audit. If you need additional information, please contact me at (314) 554-4868 or via email at [emayhorn@ameren.com](mailto:emayhorn@ameren.com).

Sincerely,



Earl R. Mayhorn  
Consulting Engineer,  
Supplier Quality

cc: A.C. Heflin, AUE  
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K.A. Mills, AUE  
M. DeWitt, CMS  
F. Rodriguez, CMS  
M. Kumar, CMS  
K. Kavanagh, NRC  
NUPIC Membership  
G231.1785

Attachment



## **SURVEILLANCE REPORT VS09-003**

### **SUBJECT**

AmerenUE Corrective Action Verification Surveillance for the August 2007 NUPIC Joint Utilities Audit of Cameron Measurement Systems, City of Industry, CA

### **OBJECTIVE**

The surveillance was performed to verify the adequacy and implementation of corrective actions for AmerenUE RCA's VA07-003-01 through -15 which were issued during the August 2007 NUPIC Joint Utilities Audit led by AmerenUE

### **SUMMARY**

The August 2007 AUE led NUPIC Joint Utilities Audit and the fifth teen (15) associated Requests for Corrective Action (RCA's) which were issued to Cameron Measurement Systems have been closed. Satisfactory closure of the audit and RCA's was based on Cameron providing acceptable responses to the findings, Cameron's implementation of the required corrective action, and AUE's verification of implementation of corrective action. Implementation of corrective action was performed during on-site visits to Cameron's City of Industry, CA facility.

AUE has approved Cameron to begin accepting requests for quote and safety related purchase orders from AmerenUE for 764 Differential Pressure (DP) transmitters, 763A Pressure transmitters, and 351/352 Sensor Systems; repairs for 764 DP transmitters, 763A Pressure Transmitters, and 351/352 Sensor Systems, and associated replacement/spare parts. This approval is based on Cameron's implementation of corrective action to resolve and close the RCA's, Cameron's technical capability, and improvements in the quality assurance program. This approval is also conditional since AmerenUE will collaborate with Cameron to identify and invoke the appropriate source surveillance and other quality requirements in these purchase orders. Moreover, AmerenUE will not authorize Cameron to release or ship items intended for AmerenUE until after completion of the November 2009 NUPIC Joint Utilities Joint which will be led by PP&L. It is also recommended that other nuclear utilities adopt similar restrictions until after completion of the NUPIC audit in November. It is recognized that the required amount and type of oversight should be based on the complexity of the item being procured (e.g. complete transmitter vs. replacement part). This approval will be expanded to include other safety related items and components as the engineering and technical evaluations including commercial grade dedication plans are completed for other products.

In addition, based on discussions with Cameron management, Cameron is responsible for independently notifying the Nuclear Regulatory Commission of their

intent to start accepting nuclear safety related orders with the overall objective of supplying safety related items within the near future.

It should be noted that all utility orders that were placed on hold with Cameron as a result of the 2007 NUPIC Joint Audit have been canceled. Each utility will be required to re-issue requests for quotes (RFQ's) and purchase orders (PO's). The products that Cameron supplies to nuclear utilities, in general, have considerable lead times. Therefore, it is recommended that the ordering process begin as soon as each utility can put the appropriate procurement restrictions into place.

### Additional Details

AmerenUE and personnel from PP&L performed four visits to Cameron to assess their status and verify implementation of corrective actions. These visits were performed in March 2008, August 2008, February 2009, and July 2009. During each visit, incremental progress was noted in Cameron's efforts to improve the quality program and resolve the open audit findings. During the July 2009 visit, significant progress was noted and all open findings were found to be either closed or closable with supplemental information. The required supplemental information was supplied subsequent to the visit. As a result, the remaining findings were closed. In closing the audit and associated RCA's it was noted that Cameron has done extensive work to address the 2007 audit findings and to develop and improve their quality assurance program. These actions include a complete re-write of the quality assurance manual, development of new procedures, development of technical evaluations and commercial grade dedication plans for harsh environment differential pressure and pressure transmitters and Sensor Systems, qualification of key sub-suppliers, improved inventory systems, capital investments in test equipment and the physical facility, implementation of SAP as a business and work management system, the initiation of a supplemental environmental testing program, and training to the applicable personnel.

Technical evaluations have been developed for the items which require qualification to harsh environmental conditions. Products which fall under this category include the 764 Differential Pressure Transmitter, 763A Pressure Transmitter, and 351/352 Sensor Systems. In addition, Bills of Materials have been developed to support the manufacturing, commercial grade dedication, testing, and procurement of items and services related to these items. Similar documentation is yet to be developed for the 288, 289, 752, 752, 200A, 227A, and 580 products. Cameron has indicated that orders for these products will not be accepted until similar engineering documentation has been developed for these items.

The November 2009 NUPIC Joint Utilities Audit will assess implementation of the program and the effectiveness of corrective actions taken to address the RCA's from the 2007 Audit. The conditional approval of Cameron at this time to begin designated work activities will also help facilitate a more performance based audit of Cameron during the November 2009 audit.

### Background

The 2007 NUPIC Joint Utilities Audit of Cameron Measurement Systems determined that Cameron Measurement Systems was not implementing a quality assurance program which met 10CFR50, Appendix B for the supply safety related pressure & differential pressure transmitters, switches, indicators, sensors, related parts, repairs, and calibrations. The audit resulted in the initiation of fifteen (15) Requests for Corrective Action (RCA's) to address instances for which Cameron's QA program or implementation of the program did not meet 10CFR50, Appendix B and/or the Cameron QA program requirements. Eleven (11) of the RCA's were determined by the audit team to be significant (some of which were repeat occurrences of deficiencies identified during the 2005 NUPIC Joint Audit of Prime Measurement Products). Four (4) of the fifteen (15) RCA's were initiated to address relatively minor deficiencies when considered individually. However, collectively, all of the findings were significant. The more significant RCA's addressed deficiencies in Cameron's implementation of program controls in the areas of design control including design changes, commercial grade dedication, evaluation of suppliers, document control, corrective action, training/qualification, QA records, and 10CFR Part 21 programs. Overall, the audit concluded the following:

- 1) Implementation of the Cameron Measurements Systems quality assurance program did not meet 10CFR50, Appendix B;
- 2) A notification of significant conditions adverse to quality was made to the NUPIC user community in accordance with NUPIC procedure; and
- 4) The audit team concluded that the approximately 75 pending nuclear safety related orders should remain on hold pending Cameron's resolution of the audit findings

It should be noted that the majority of the concerns identified during the audit occurred or originated when Prime Measurements still owned the ITT Barton product line and not under Cameron's ownership. Since the adverse findings impacted the product line, the RCA's were issued to Cameron for resolution. Senior members of Cameron's senior leadership team expressed a commitment to address and resolve the audit findings.

During the audit, three (3) Nuclear Regulatory Commission (NRC) inspectors observed the performance of the NUPIC Audit Team, performed a follow-up to a July 2006 NRC inspection at Prime Measurements Products, and performed an inspection of the Cameron Measurement Systems' 10CFR Part 21 procedures and process. The NRC identified potential concerns with resolution of the issues from the 2006 inspection and new issues relative to the current 10CFR Part 21 process and procedures.

The attached appendix includes detail descriptions of the audit findings, Cameron responses and corrective actions, and the verification of implementation for these corrective actions.

The results of this surveillance were discussed during the post-surveillance meeting on July 9, 2009.



Earl R. Mayhorn  
Consulting Engineer  
Supplier Quality

**Surveillance Team**

Earl Mayhorn, Lead, AUE  
David Glockner, Team Member, PPL  
Kevin Schoolcraft, Team Member, AUE  
Michael Hudson, Technical Specialist, AUE

**Personnel Contacted**

Francie Rodriguez, Plant Manager  
Matt DeWitt, Director  
Chuck Rogers, Division QA Manager  
Steve Skinner, Division Engineering Manager  
Jim Geer, Engineering Manager  
Mark Kumar, Quality Manager  
Mark Larson, Senior Nuclear Project Engineer  
Mabel Loo, Inside Sales Manager  
Tom Roide, Manufacturing Engineer

Attachment