

May 4, 2011

MEMORANDUM TO: Laura A. Dudes, Director
Division of Construction, Inspection
& Operational Programs
Office of New Reactors

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

FROM: Jonathan Ortega-Luciano, Operations Engineer **/RA/**
Division of Engineering
Office of Nuclear Reactor Regulation

SUBJECT: TRIP REPORT BY THE NUCLEAR REGULATORY
COMMISSION (NRC) STAFF OF THE JOINT UTILITY TEAM
AUDIT AT CAMERON MEASUREMENT SYSTEMS, CITY OF
INDUSTRY, CA

On April 4 - 8, 2011, Jonathan Ortega-Luciano of the Office of Nuclear Reactor Regulation (NRR) Division of Engineering (DE) and Kerri Kavanagh of the Office of New Reactors (NRO) Division of Construction Inspection and Operational Programs (DCIP) observed the performance of a joint utility audit of Cameron Measurement Systems (Cameron), in City of Industry, CA. Southern Nuclear Operating Company (SNC) led the audit, with participation from Duke Energy, Ameren UE, DTE Energy, and South Carolina Electric and Gas (SCE&G), using the Nuclear Procurement Issues Committee (NUPIC) checklist. The purpose of the staff's observation was to assess the NUPIC quality assurance audit process used for suppliers of components to the nuclear industry. The trip report of the staff's observations including a list of the persons contacted is enclosed.

Enclosure:
As stated

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DATE	04/26 /2011	05/03/2011	04/28/2011	05/04/2011

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NRC TRIP REPORT

Subject

This trip report documents observations made by members of the Nuclear Regulatory Commission (NRC) Office of Nuclear Reactor Regulation (NRR), Division of Engineering (DE) and the Office of New Reactors (NRO), Division of Construction Inspection and Operational Programs (DCIP) during a joint utility audit conducted on April 4 - 8, 2011, at Cameron Measurement Systems, City of Industry, CA.

Dates of Audit and Organization Visited

April 4 - 8, 2011
Cameron Measurement Systems (Cameron)

Author, Title and Agency Affiliation

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Sensitivity

There were no documents removed from the facility during the conduct of the inspection and audit. This document is publicly available (ADAMS Accession No. ML111160004).

Background/Purpose

This trip report documents the staff's observation of a joint utility audit conducted at Cameron on April 4 - 8, 2011. The seven-person audit team was led by Southern Nuclear Operating Company (SNC) and included representatives from Duke Energy, Ameren UE, DTE Energy, and South Carolina Electric and Gas (SCE&G). The team performed an audit of Cameron in City of Industry, CA, using the Nuclear Procurement Issues Committee (NUPIC) checklist.

NUPIC was formed in 1989, by a partnership involving all domestic and several international nuclear utilities. The NUPIC program evaluates suppliers furnishing safety-related components and services and commercial-grade items to nuclear utilities. The audit team followed the NUPIC audit process and plans to provide the results to NUPIC members that procure parts and services from Cameron.

The purpose of the staff's observation of this audit was to ensure the NUPIC audit process meets the requirements of Appendix B to 10 CFR 50 (Appendix B). The staff implemented Inspection Procedure (IP) 43005, "NRC Oversight of Third-Party Organizations Implementing Quality Assurance Requirements." The inspectors did not to implement IP 43005, Section 02.02, "Conduct an inspection of the vendor's 10 CFR Part 21 program utilized for reporting defects and noncompliance" since this procedure is currently under revision to eliminate this inspection requirement.

Enclosure

Cameron designs, manufactures and distributes measurement and control instrumentation. Cameron's quality program was written to comply with Appendix B, 10 CFR Part 21, the American Society of Mechanical Engineers (ASME) NQA-1-1994, "Quality Assurance Requirements for Nuclear Facility Applications," Institute of Electrical and Electronics Engineers (IEEE) Std 323-1974, "IEEE Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations," and IEEE Std 344-1975, "Recommended Practice for Seismic Qualification of Class 1E Equipment for Nuclear Power Generating Stations."

This is the second NRC observation of a joint utility audit at Cameron. The previous observation was conducted during a joint utility audit in August 2007, and resulted in NUPIC issuing an Immediate Notification of Significant Condition at the conclusion of the audit. NUPIC's 2007 Notification stated that the audit team determined that the nuclear safety-related orders should remain on hold pending Cameron's written response to the fifteen Requests for Corrective Action.

Discussion

The joint utility audit scope was to determine the acceptability and verify the effective implementation of Cameron's quality assurance (QA) program in accordance with the requirements of Appendix B. The audit team used the performance-based NUPIC audit checklist, which is divided into the 18 criteria of Appendix B. This checklist was supplemented by other recognized consensus standards relevant to the supplier being audited. The NUPIC audit checklist can be downloaded from the NUPIC web site: www.nupic.com.

The audit checklist delineated the activities to be examined within each section and how to use the referenced data sheets to record the objective evidence reviewed for each section. The review included an analysis of Cameron's contract review process, an examination of design (including commercial grade item dedication), procurement controls associated with specific utility orders, procurement, fabrication/assembly, material control and handling, storage and shipping, special processes, tests and inspections, calibration, document control/adequacy, organization, records, training/certification, internal audits, corrective action, and nonconformance items/Part 21.

The audit team's technical specialist used the Performance Based Supplemental Audit (PBSA) worksheet to review: 1) markings and identification, 2) material, 3) dimensions and tolerances, 4) mechanical attributes-pressure rating, 5) electrical attributes-voltage, insulation, accuracy, etc., and 6) maintenance or environmental and seismic qualification. The PBSA worksheets were specific to Model 764 differential pressure transmitter, Model 763A gage pressure transmitter, Barton nuclear model 227A differential pressure transmitter, and Barton nuclear model 288A differential pressure indicating switch.

The NRC staff observed all aspects of the joint utility team's conduct of the audit at the Cameron facility, which included the audit team meeting conducted on April 3, 2011, to review audit assignments and expectations. The NRC staff observed the auditors as they conducted a performance-based review of the specific audit checklist sections which included a review of the Cameron QA manual and other lower tier implementing documents such as procedures and purchase orders. The NRC staff observed how documents were selected for review and the adequacy of the reviews, interviews conducted of Cameron engineers, QA engineers, inspectors, technical personnel, and observed inspection, testing, dedication, soldering activities

and calibration. The NRC staff observed the daily meetings that the audit team conducted internally, the daily debrief with the Cameron management team, and the formal exit meeting.

During the audit, the NRC staff noted that the technical specialist was an expert on pressure transmitters and related instruments manufactured by Cameron and that the audit team members were experienced in using the NUPIC checklist and the applicable regulations. Audit team members coordinated with one another to ensure that documents reviewed by the auditors fed into the auditor reviewing document control. In addition, the technical specialist worked closely with the audit team member responsible for reviewing design and commercial-grade dedication to maximize the technical aspect of the review. The audit team members took the time to understand Cameron's process used to procure, manufacture, assemble, test/calibrate and ship each of the items selected for their review. The NRC staff noted that the audit team members spent a good amount of time on the shop floor observing activities such as receipt inspection, calibration, hydro testing, pressure tests, fabrication of bellows, dedication, and verifying procedure implementation. Various employees of Cameron were interviewed during these observations by the joint utility team. The joint utility team exhibited an appropriate "questioning attitude," and appropriately expanded on key areas of the NUPIC checklist when necessary. The lead auditor addressed all team concerns, preliminary findings, and requests for vendor documentation while maintaining the team's focus throughout the week. In general, the audit team performed a sound, thorough, performance-based review of the audited areas.

The NRC staff noted that the NUPIC checklist does not address the requirements associated with an entity not performing procurement source evaluation and selection measures for the procurement of commercial-grade calibration services. However, the auditor responsible for the review of procurement had the NRC staff's safety evaluation, which delineates the requirements to utilize the exception, to ensure that Cameron was implementing the exception correctly.

The audit team identified five preliminary findings and three recommendations associated with Cameron's implementation of the quality program and regulatory requirements of Appendix B and Part 21. These preliminary findings and recommendations were discussed in detail with Cameron management during the exit meeting. The joint utility team presented one preliminary finding on commercial-grade dedication and four other preliminary audit findings and recommendations in the following four Appendix B areas: 1) Instructions, Procedures, and Drawings, 2) Identification and Control of Materials, Parts, and Components; 3) Control of Purchased Material, Equipment, and Services; and 4) Nonconforming Items/Part 21. Multiple examples of the identified deficiencies were provided in the areas of procedural adherence, documentation, and commercial-grade dedication.

Conclusions

The audit team leader conducted adequate daily briefings with the audit team and the Cameron management team on issues and potential findings. These daily briefings enhanced the audit team's understanding of issues and audit findings and provided an effective feedback mechanism from experienced audit team members on the significance of individual team findings. The auditors supported their findings with comprehensive objective evidence and went to sufficient depth in their respective areas of focus. Overall, the NRC staff concluded, based on the review of the audit areas covered, that the joint utility audit process was effectively implemented by the audit team and resulted in sound performance-based findings for failure to adequately implement the Appendix B and Part 21 requirements.

Pending Actions/Planned Next Steps for NRC

This NRC assessment was one of three planned NUPIC observations for FY 2011. Depending on the adequacy of the responses from Cameron to the NUPIC findings, the staff may conduct a follow-up inspection.

Points for Commission Consideration/Items of Interest

None.

List of Meeting Participants

U.S. NRC

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