

April 12, 2017

MEMORANDUM TO: Tim J. McGinty, Director  
Division of Construction Inspection  
and Operational Programs  
Office of New Reactors

FROM: John P. Burke, Branch Chief **/RA/**  
Quality and Vendor Inspection Branch-2  
Division of Construction Inspection  
and Operational Programs  
Office of New Reactors

SUBJECT: TRIP REPORT BY THE NUCLEAR REGULATORY  
COMMISSION STAFF OF THE NUPIC JOINT UTILITY TEAM  
AUDIT AT FAIRBANKS MORSE ENGINE

On April 3-7, 2017, Ashley Ferguson and Raju B. Patel, of the Office of New Reactors (NRO), Division of Construction Inspection and Operational Programs, observed the performance of a Nuclear Procurement Issues Committee (NUPIC) joint utility audit of Fairbanks Morse Engine, Beloit, WI. Entergy led the audit, with participation from DTE Energy, Exelon, Wolf Creek Nuclear, Xcel Energy, NextEra Energy, and Electronuclear Eletrobras Termonuclear (Brazil) using the 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 persons contacted, is enclosed.

Enclosure:  
As stated

CONTACT: Raju B. Patel, NRO/DCIP/QVIB-2  
(301) 415-3511

SUBJECT: TRIP REPORT BY THE NUCLEAR REGULATORY COMMISSION STAFF OF  
THE NUPIC JOINT UTILITY TEAM AUDIT AT FAIRBANKS MORSE ENGINE

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<b>OFFICE</b>	NRO/DCIP	NRO/DCIP	NRO/DCIP
<b>NAME</b>	AFerguson	RPatel*	JBurke
<b>DATE</b>	04/12/2017	04/12/2017	04/12/2017

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**NUCLEAR PROCUREMENT ISSUES COMMITTEE AUDIT  
OBSERVATION TRIP REPORT**

Vendor Audited: Fairbanks Morse Engine  
701 White Ave  
Beloit, WI 53511

Lead Licensee: Entergy

Lead Contact: Michael McCann

Nuclear Industry Activity: Fairbanks Morse Engine, (hereafter referred to as FME), is the manufacturer of Fairbanks Morse and Alco Diesel engines, generator sets, spare and replacement parts and repair services for emergency diesel engines/generators for the nuclear power industry. These components and services are provided in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50 Appendix B, and the American Society of Mechanical Engineers (ASME) NQA-1 Standards. In addition, FME provides Engineering services associated with Diesel engines, parts, and services including load sequence calculations/analysis.

Observation Dates: April 3-7, 2017

Observers: Raju B. Patel NRO/DCIP/QVIB-2  
Ashley Ferguson NRO/DCIP/QVIB-3

Management John P. Burke NRO/DCIP/QVIB-2 Representation

Approved by: Tim McGinty, Director  
Division of Construction Inspection  
and Operational Programs  
Office of New Reactors

**Subject**

This trip report documents observations made by members of the Nuclear Regulatory Commission's (NRC) Office of New Reactors (NRO), Division of Construction Inspection and Operational Programs (DCIP), during a joint utility audit conducted on April 3-7, 2017, at the Fairbanks Morse Engine facility located in Beloit, WI.

Enclosure

## **Background/Purpose**

The Nuclear Procurement Issues Committee (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 NUPIC audit team followed the NUPIC audit process and plans to provide the results to NUPIC members that procure parts and services from Fairbanks Morse Engine (FME).

This audit was performed using the NUPIC audit checklist. The purpose of the audit was to evaluate the implementation and effectiveness of FME Quality Assurance (QA) Program. The audit also included an assessment of the effectiveness of corrective actions that FME had taken to close previous findings in selected areas identified during the 2014 NUPIC audit led by Xcel Energy. This nine person audit team was led by Entergy and included representatives from DTE Energy (DTE), Exelon (EXL), Wolf Creek Nuclear (WCN), Xcel Energy (XEL), NextEra Energy (NEE) and Electronuclear Eletrobras Termonuclear (ETN).

The purpose of the NRC staff's observation of this audit was to ensure the NUPIC audit process continues to meet the requirements of Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities." The NRC staff implemented Inspection Procedure 43005, "NRC Oversight of Third-Party Organizations Implementing Quality Assurance Requirements," during the observation.

## **Discussion**

FME provided its QA manual and other implementing procedures to the NUPIC audit team. The NUPIC audit team reviewed the implementation of the requirements of Appendix B to 10 CFR Part 50 in the QA program and supporting implementing procedures, evaluated the documentation associated with the activities that had been performed, and discussed the activities with FME personnel. The NUPIC audit team observed work practices to verify activities were in accordance with applicable procedures.

The quality areas reviewed during the audit included the following: contract review, design control, commercial- grade dedication (CGD), procurement, special processes, internal audits, records, training, measuring and test equipment (M&TE), material control, corrective action, nonconforming items and 10 CFR Part 21. In addition, a technical specialist assisted the NUPIC audit team on the review of CGD, special processes and design control. The NUPIC audit team also asked questions related to Safety Culture during audit activities on the shop floor. The NUPIC audit team conducted daily team meetings to discuss their observations and findings.

During the exit meeting, the NUPIC audit team presented nine potential findings to FME management, including areas such as design control, CGD, document control, oversight of suppliers, M&TE, training, and test control.

With the exception of the audit findings identified, the NUPIC audit team determined that FME was effectively implementing its QA program for the program elements that were audited. In addition, the NUPIC audit team concluded that the findings had no impact on product quality.

## **Conclusions**

For the audit observation, the two NRC staff members each verified a sample of the audit checklist review areas. The NRC staff observed the NUPIC audit team members perform their portions of the audit. Specifically, the NRC staff observed NUPIC's review and evaluation processes for the implementation of FME's QA program for ensuring licensee procurement requirements, design requirements, ASME Section III code requirements, and associated design specifications were adequately incorporated into the qualification and commercial-grade dedications.

The NRC staff observed the daily team meetings to verify that the NUPIC audit team was adequately addressing issues and effectively verifying the implementation of QA program requirements. The NRC staff observed shop manufacturing activities such as welding, NDE, inspections, testing, and CGD acceptance activities. The NRC staff noted that the NUPIC audit team engaged the NRC throughout the audit, and when requested, provided clarification on regulatory positions. The NRC also had access to all interactions between FME and the NUPIC audit team, as well as access to the same records reviewed by them. In addition, the NUPIC audit team was technically capable and effectively engaged the vendor; asking the right questions and challenging the vendor as required. Furthermore, the NUPIC audit team was effective at communicating with each other.

The NRC concluded that the NUPIC checklist was effectively implemented and resulted in appropriate performance-based findings. The NRC staff found that the NUPIC audit team adequately addressed the specific areas of the checklist on which the NRC staff focused their review. The NRC inspectors also noted that NUPIC performed a technically focus audit instead of focusing more on the programmatic implementation.

## **List of Participants**

<b>Name</b>	<b>Title</b>	<b>Affiliation</b>	<b>Entrance</b>	<b>Exit</b>
Mike McCann	Team Leader	Entergy	X	X
Tim Czuba	Auditor	Entergy	X	X
Diona Russell	Auditor	DTE	X	X
John Ott	Auditor	XEL	X	X
Jim Gill	Auditor	NEE	X	X
Victor Fernandes de Pina	Auditor	ETN	X	X
Michael Buel	Auditor	WCN	X	X
John Sheffield	Auditor	EXL	X	X
Ryan Summers	Technical Specialist	Entergy	X	X