

October 9, 2008

Mr. Dominic Dedolph, Quality Assurance Manager  
Fairbanks Morse Engine  
701 White Ave.  
Beloit, WI 53511-5492

SUBJECT: NRC INSPECTION REPORT NO. 99901378/2008-201, NOTICE OF VIOLATION  
AND NOTICE OF NONCONFORMANCE

Dear Mr. Dedolph:

From September 9 to September 12, 2008, the U.S. Nuclear Regulatory Commission (NRC) conducted an inspection at the Fairbanks Morse Engine (FME) facility in Beloit, WI. The enclosed report presents the results of this inspection.

This was a limited scope inspection, which focused on assessing your compliance with the provisions of Part 21 of Title 10 of the *Code of Federal Regulations* (10 CFR Part 21) "Reporting of Defects and Noncompliance," and selected portions of Appendix B to 10 CFR Part 50, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants." This NRC inspection report does not constitute NRC endorsement of your overall quality assurance (QA) or 10 CFR Part 21 programs.

Based on the results of this inspection, the NRC has determined that two Severity Level IV violations of NRC requirements occurred. The violations are cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding them are described in detail in the subject inspection report. The violations are being cited in the Notice because NRC inspectors identified that FME failed to meet the requirements set forth in 10 CFR Part 21 for: 1) procedures to evaluate deviations and procurement documents, and 2) failure to invoke 10 CFR Part 21 on sub-suppliers for safety-related services.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

During this inspection, NRC inspectors also found that implementation of your QA program failed to meet certain NRC requirements contractually imposed on you by your customers. The NRC inspectors noted a deficiency for a failure to conduct a survey of a sub-supplier for functional testing services. The specific findings 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 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  
Division Director  
Division of Engineering  
Office of Nuclear Reactor Regulation

Docket No.: 99901378

Enclosures:   1. Notice of Violation  
                  2. Notice of Nonconformance  
                  3. Inspection Report 99901378/2008-201

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 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  
Division Director  
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Office of Nuclear Reactor Regulation

Docket No.: 99901378

Enclosures: 1. Notice of Violation  
2. Notice of Nonconformance  
3. Inspection Report 99901378/2008-201

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## NOTICE OF VIOLATION

Fairbanks Morse Engine  
701 White Ave.  
Beloit, WI 53511-5492

Docket Number 99901378  
Inspection Report No. 99901378/2008-201

Based on the results of a Nuclear Regulatory Commission (NRC) inspection conducted September 9 - 12, 2008, of activities performed at Fairbanks Morse Engine (FME), two violations of NRC requirements were identified. In accordance with the NRC Enforcement Policy, the violations are listed below:

- A. 10 CFR Part 21, Section 21.21, "Notification of failure to comply or existence of a defect and its evaluation," paragraph (a) requires in part that "each individual, corporation, partnership, or other entity subject to 10 CFR Part 21 shall adopt appropriate procedures to evaluate deviations and failures to comply associated with substantial safety hazards as soon as practicable."

Contrary to the above, as of September 12, 2008:

1. FME's 10 CFR Part 21 implementing procedure Standard Practice 714.00, "Procedure on Reporting of Defects & Noncompliance to NRC," dated October 2003, was not an appropriate procedure to ensure effective identification and evaluation of deviations and failures to comply associated with a substantial safety hazard. Specifically, FME did not identify and evaluate potential Part 21 deviations in accordance with Standard Practice 714.00.
2. The Engineering Report, "Cylinder Liner Failure – Delaminated Chrome Plating 38TD8-1/8 OP, Limerick EDG [Emergency Diesel Generator] D24, Cylinder #8," associated with FME's Business Form 5388C, Serial Number 06-02, "Substantial Safety Hazard Evaluation 10CFR21 Standard Practice 714.00," was an inadequate evaluation for determining 10 CFR Part 21 reportability. Specifically, the evaluation failed to address whether the delamination of cylinder #8 would have prevented the EDG from performing its safety function as a basic component, as described in 10 CFR 21.3.

This issue has been identified as Violation 99901378/2008-201-01.

This is a Severity Level IV violation (Supplement VII).

- B. 10 CFR Part 21, Section 21.31, "Procurement Documents," requires that "each individual, corporation, partnership, dedicating entity, or other entity subject to the regulations in this part shall ensure that each procurement document for a facility, or a basic component issued by him, her or it on or after January 6, 1978, specifies, when applicable, that the provisions of 10 CFR part 21 apply."

Contrary to the above, on May 1, 2008:

FME failed to invoke the provisions of 10 CFR Part 21 in Purchase Order 1102554, to Nuclear Logistics Incorporated for safety-related seismic testing services.

This issue has been identified as Violation 99901378/2008-201-02.

**ENCLOSURE 1**

This is a Severity Level IV violation (Supplement VII).

Pursuant to the provisions of 10 CFR 2.201, "Notice of Violation," you are required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001, with a copy to the Director, Division of Engineering, Office of Nuclear Reactor Regulation, within 30 days of the date of the letter transmitting this Notice of Violation. This reply should be clearly marked as a "Reply to a Notice of Violation" and should include: (1) the reason for the violation, or, if contested, the basis for disputing the violation; (2) the corrective steps that have been taken and the results achieved; (3) the corrective steps that will be taken to avoid further violations; and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agency-wide Documents Access and Management System (ADAMS), 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. ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. 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 9<sup>th</sup> day of October 2008.

## NOTICE OF NONCONFORMANCE

Fairbanks Morse Engine  
701 White Ave.  
Beloit, WI 53511-5492

Docket Number 99901378  
Inspection Report No. 99901378/2008-201

Based on the results of a Nuclear Regulatory Commission (NRC) inspection conducted September 9 - 12, 2008, of activities performed at Fairbanks Morse Engine (FME), certain activities were not conducted in accordance with NRC requirements which were contractually imposed upon FME by NRC licensees.

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."

Fairbanks Morse Engine Standard Practice 750.00, dated April 2008, "Nuclear Order Processing and Commercial Grade Item Dedication Program" states in part that "Certified Material Test Reports, functional test results, or other test results used to substantiate material verification will be from suppliers, which have been audited or surveyed triennially. Other independent tests, analyses, or inspections performed at FME can also substantiate information from non-audited suppliers."

Contrary to the above, on September 27, 2007:

FME failed to perform a survey to provide objective evidence that a functional test, performed by Crane Engineering was in accordance with appropriate quality standards for FME Order 40059058 for a jacket water pump for North Anna. No independent tests analyses or inspections were performed at FME to substantiate information from the non-audited supplier.

This issue has been identified as Nonconformance 99901378/2008-201-03.

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

**ENCLOSURE 2**

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 9<sup>th</sup> day of October 2008.

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

Docket No.: 99901378

Report No.: 99901378/2008-201

Vendor: Fairbanks Morse Engine  
701 White Ave.  
Beloit, WI 53511-5492

Vendor Contact: Dominic Dedolph,  
Quality Assurance Manager  
Phone: (608) 364-8132  
Dominic.Dedolph@fairbanksmorse.com

Nuclear Industry: Fairbanks Morse Engine is the Original Equipment Manufacturer for emergency diesel generators that provide critical standby power for nuclear power plants. Fairbanks Morse Engine also supplies commercial-grade replacement parts that have been dedicated as basic components to maintain these engines.

Inspection Dates: September 9 – September 12, 2008

Inspection Team Leader: Paul Prescott, DE/NRR

Inspectors: Victor Hall, DE/NRR  
Carla Roquecruz, DE/NRR

Approved by: Dale Thatcher, Chief:           /RA/           Date: 10/06/2008  
Quality & Vendor Branch  
Division of Engineering  
Office of Nuclear Reactor Regulation



## EXECUTIVE SUMMARY

Fairbanks Morse Engine  
99901378/2008-201

The purpose of this inspection was to review selected portions of Fairbanks Morse Engine's (FME's) quality assurance (QA) and 10 CFR Part 21 (Part 21) programs. The inspectors focused on FME's activities in the area of dedication of replacement parts for emergency diesel generators (EDGs) supplied as basic components to NRC-licensed facilities. The inspection was conducted at FME's manufacturing facility in Beloit, Wisconsin.

The NRC inspection bases were:

- 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*; and
- 10 CFR Part 21, "Reporting of Defects and Noncompliance."

There were no NRC inspections of FME's facility in Beloit, Wisconsin in the previous five years. The results of this inspection are summarized below.

### 10 CFR Part 21 Program

The inspectors identified two violations of Part 21. One example of Violation 99901378/2008-201-01 was cited for failure to develop an appropriate procedure to perform an evaluation as specified in Part 21. Additionally, the inspectors identified a second example for failure to perform an adequate evaluation in accordance with the requirements of Part 21. Violation 99901378/2008-201-02 was cited for failure to invoke Part 21 on a sub-supplier of safety-related services. With the exception of the violations noted above, the inspectors concluded that FME's Part 21 program was consistent with the regulatory requirements.

### Corrective Action

Based on the review of FME's corrective action and nonconformance process and implementing procedures, and a sample of Corrective Action Requests (CARs) and Nonconformance Reports (NCRs), the inspectors determined that FME's process met the requirements of Criterion XVI of Appendix B to 10 CFR Part 50. No findings of significance were identified.

### Commercial-Grade Dedication

The inspectors identified one nonconformance to 10 CFR Part 50, Appendix B. Nonconformance 99901378/2008-201-03 was cited for failure to perform: 1) a survey of Crane Engineering, or 2) independent testing for the functional test of a jacket water pump. With the exception of the nonconformance noted above, the inspectors concluded that FME is generally implementing a commercial-grade dedication process in compliance with regulatory requirements and industry guidance.

### Audits

The inspectors concluded that FME's audit program requirements and implementation were consistent with the regulatory requirements of Criterion XVIII of Appendix B to 10 CFR Part 50. No findings of significance were identified.

## REPORT DETAILS

### 1. 10 CFR Part 21 Program

#### a. Inspection Scope

The inspectors reviewed the FME Quality Assurance Manual (QAM), Revision 41, dated February 4, 2008, and procedures that governed the Part 21 program to determine compliance with Part 21. Specifically, the inspectors focused on portions of FME's QAM, and implementing procedure Standard Practice 714.00, "Procedure on Reporting of Defects and Noncompliance to NRC," dated October 2003.

In addition, the inspectors evaluated FME's Part 21 notifications from the past two years to verify compliance with Part 21 requirements. The inspection included review of the evaluations performed for the Part 21 notifications issued by FME and a sample of evaluations that resulted in the determination that problems were not reportable.

Finally, the inspectors reviewed QAM Section 11, "Purchasing and Control of Purchased Items and Services," associated Standard Practices, and a safety-related Purchase Order (PO) to determine whether FME properly specified the applicability of Part 21 in procurement documents for safety-related services from sub-suppliers.

#### b. Observations and Findings

The inspectors noted that the section entitled, "Notification of Failure to Comply or Existence of a Defect and Evaluation," in FME Standard Practice 714.00 stated that "Employees are responsible to report deviations and failures to comply to identify defects and failures to comply associated with substantial safety hazards to the Manager, Quality Assurance." The inspectors discussed the procedure with FME's QA manager and identified that not all FME personnel are trained to Part 21 requirements. The inspectors noted that quality, purchasing, and some engineers received training on Part 21 requirements. Additionally, in discussions with the QA manager it was noted that NCRs and CARs are initially reviewed by quality and purchasing personnel for the potential need to perform an evaluation in accordance with Part 21.

The inspectors noted that Standard Practice 630.20 "Nonconforming Material Control," dated April 2008, did not have a process to initiate an evaluation for a potential deviation. Based on a customer's audit, FME's QA manager initiated a revision to the NCR form to include a check box for Part 21 applicability. The inspectors noted that, under the new process, FME QA was responsible for reviewing all NCRs forms and determining whether an NCR is a deviation and must be evaluated under Part 21. The inspectors determined that the proposed revision to the procedure and the current process ensured that all NCRs are evaluated for potential Part 21 applicability.

The inspectors noted FME engineering would perform an engineering report for an evaluation of a Part 21 requiring technical justification. However, the inspectors determined that procedure 714.00 did not describe the process as it is conducted by FME. The failure to prescribe the initial Part 21 screening process in procedure 714.00 was inconsistent with the regulatory requirements of 10 CFR Part 21. This example was identified as Violation 99901378/2008-201-01.

The inspectors reviewed a Substantial Safety Hazard Evaluation, Serial No. 06-02, "Delamination of Chrome as Outlined per Exelon E-Mail," dated December 16, 2005. Exelon notified FME of liner distress in Limerick's EDG D24, cylinder #8. Exelon supplied evidence to FME of liner chrome plating delamination on a significant portion of the liner surface. This liner, and the remaining 11 liners, were installed in December 2003, and had accumulated approximately 140 operating hours. Exelon also provided a detailed failure evaluation of the liner delamination and upper and lower piston rings, which had been broken.

The subsequent FME Engineering Report No. R-5.15-4018, "Cylinder Liner Failure – Delaminated Chrome Plating 38TD8-1/8OP, Limerick EDG D24, Cylinder #8," concluded that:

"This failure is isolated, not felt to be a widespread problem, and many other engines have operated with a damaged ring/liner interface, this issue is not considered to be a safety hazard."

The inspectors discussed the conclusions with the responsible FME engineer and QA manager. The inspectors determined that FME could not provide adequate justification that the diesel, if called upon, could have performed its safety function as a basic component, as described in 10 CFR 21.3, prior to the liner inspection interval. The inspectors noted that FME's conclusion implied that since failure was isolated, it was not reportable under Part 21. The inspectors clarified to FME that Part 21 reportability is independent of the frequency of failures (i.e. an isolated incident can still be reportable under Part 21.) This example was identified a second example of Violation 99901378/2008-201-01 for the failure to provide an adequate evaluation for a potential Part 21 reportable condition.

The inspectors did not identify any significant issues for the following Part 21 Notifications, associated evaluation and proposed corrective actions taken, and notifications to affected licensees:

- Event Number 44178, "Part 21 Notification Regarding Identification of Defect Alco Snubber Valve Micro-Cracking," dated April 29, 2008
- Event Number 43235, "10 CFR 21 Notification – Identification of Defect Woodward Governor Pivot Pin Defect," dated March 14, 2007
- Event Number 43294, "Part 21 Notification – Diesel Cam Roller Bushing Failures," dated April 9, 2007
- Event Number 43031, "Potential Defective Woodward Governor for Fairbanks Morse EDG," dated December 5, 2006

In addition, the inspectors reviewed internal NRC Operating Communication (OpE Comm), "Hatch: EDG Engine to Generator Shaft Coupling Failure and Special Inspection," for FME's corrective actions concerning this event. On July 12, 2008, the Hatch 1B EDG was declared inoperable during a 24-hour Technical Specification surveillance run. The licensee secured the EDG when they observed increasing diesel engine and generator vibration during the test. The licensee determined that the flexible

portion of the coupling between the engine and generator had failed. The licensee's engineering justification determined that the coupling failure was age-related. The licensee believed that the coupling had been in service since the EDG's installation in June 1969.

The inspectors discussed subsequent actions taken to ensure licensees were aware of the issue with FME personnel. Hatch replaced all five couplings. The three other directly affected utilities have inspected and either replaced or scheduled to replace the coupling. The respective Owner's Group for opposed piston EDGs, in Revision 1 of the Owners' Group Generator Maintenance Recommendations contained the following good practice concerning the coupling:

"The coupling between the generator and engine on two bearing generators driven by opposed piston engines contains a rubber donut (or gland) to electrically isolate the generator shaft from the engine shaft and bearing and is a flexible coupling manufactured by Falk. Over a period of time, the torsional and axial stiffness of the flexible coupling may change and produce a resonance at or near running speed in the axial direction and/or become resonant to torsional frequencies the engine produces. In addition, the elastomer will age due to environmental exposure and the exposure to the cycling of the mechanical forces produced at the generator-engine coupling location. It is recommended the flexible coupling be periodically inspected by taking durometer readings and visual inspections for cracks in the elastomer. It may also be prudent to periodically replace the rubber gland in the coupling. One member of the Owners' Group has developed a 20-year PM for replacement of the rubber gland in the coupling."

Additionally, FME supplied one of the utilities requested information on the estimated shelf life information for couplings maintained as spares. The inspectors did not identify any issues with FME's or the licensees' proposed corrective actions taken to prevent recurrence of this issue.

FME had one recent order for safety-related services from Nuclear Logistics Incorporated (NLI). The inspectors noted that FME performed an audit of NLI on August 20, 2008, which included Part 21 compliance in its scope. However, the inspectors determined that FME PO 1102554, Rev 0, dated May 1, 2008, to NLI for a safety-related seismic test did not invoke Part 21 as required by 10 CFR 21.31, "Procurement Documents." This issue has been identified as Violation 99901378/2008-201-02. The inspectors further noted that the following quality documents did not specify that Part 21 must be invoked on suppliers of safety-related services:

- FME's QAM Section 11, "Purchasing and Control of Purchased Items and Services"
- Standard Practice 645.00, "Purchasing Process," dated November 2007
- Standard Practice 645.10, "Procurement Document Control – Safety Items," dated March 2008

- Standard Practice 645.20, “Control of Purchased Items and Services – Safety Items,” dated March 2008

c. Conclusions

The inspectors identified two violations of Part 21. One example of Violation 99901378/2008-201-01 was cited for failure to adequately prescribe the process to perform an evaluation as specified in Part 21. Additionally, the inspectors identified a second example for failure to perform an adequate evaluation in accordance with the requirements of Part 21. Violation 99901378/2008-201-02 was cited for failure to invoke Part 21 on a sub-supplier of safety-related services. With the exception of the violations noted above, the inspectors concluded that FME’s Part 21 program was consistent with the regulatory requirements.

2. Corrective Action

a. Inspection Scope

The inspectors reviewed the procedures governing the implementation of FME’s corrective action program to ensure the procedures provided adequate guidance consistent with the requirements of Appendix B to 10 CFR Part 50 and Part 21. The inspectors also reviewed a sample of CARs to assess FME’s implementation of the corrective action program.

Additionally, the inspectors reviewed FME’s nonconformance process and assessed implementation through a review of a sample of NCRs.

b. Observations and Findings

The inspectors noted that FME’s implementing procedure Standard Practice No. 700.10, “Corrective and Preventive Action,” dated April 2008, established the process for identifying, investigating, reporting, tracking, and correcting conditions adverse to quality, significant conditions adverse to quality, communicating lessons learned, and tracking customer-identified issues. This procedure detailed the process of identifying and documenting apparent conditions adverse to quality that fall under the scope of FME’s quality program, investigating and correcting those adverse conditions, and closing CARs upon completion of corrective action.

FME’s CAR document was used to identify an issue, report measures and actions taken to evaluate and resolve apparent conditions adverse to quality, and track required actions through completion. The CAR process included, but was not limited to description of the issue, the owner of the CAR, investigation and evaluation documentation results, and prescribed actions to be taken.

The FME procedure Standard Practice No. 630.20, “Nonconforming Material Control,” dated April 2008, described the methods established to ensure that product which does not conform to requirements was adequately identified, controlled, segregated if practical, and disposed of or re-verified for acceptance. The procedure applied to a nonconformance discovered at a supplier’s premises, internally to FME, or after delivery or use of the product.

The inspectors reviewed a sample of CARs and NCRs. No findings of significance were identified.

c. Conclusion

Based on the review of FME's corrective action and nonconformance process, implementing procedures, and a sample of CARs and NCRs, the inspectors determined that FME's process met the requirements of Criterion XVI of Appendix B to 10 CFR Part 50. No findings of significance were identified.

3. Commercial-Grade Dedication Process

a. Inspection Scope

The inspectors reviewed FME's QAM and the implementation process for commercial-grade dedication activities. This assessment included a review of the procedures governing the implementation of commercial-grade dedication activities, interviews with FME personnel and a review of a sample of completed commercial-grade dedication packages. The inspectors also observed dedication activities being performed in the shop by FME personnel.

The inspectors interviewed FME personnel and reviewed FME QAM sections and Standard Practice procedures related to the Engineering Change Order (ECO) process and for the development and modification of Critical Characteristics Verification (CCV) sheets.

b. Observations and Findings

The inspectors noted that FME performed commercial-grade dedication on the replacement parts that it sells for its EDGs. FME performed primarily Method 1 dedication, special tests and inspection, using controlled CCV Records. FME engineering supported the dedication process by developing the CCV's and modifying them through the ECO process. The inspectors did not identify any significant issues with FME's process and implementation for the development and modification of CCVs.

The inspectors noted that FME Order 40059058 for various parts, including a jacket water pump (Line Item number 1) for North Anna for Dominion Generation PO 45500685 improperly took credit for a functional test. FME dedicated the jacket water pump on September 27, 2007. The CCV for the dedication of the pump required a functional test. FME took credit for a test performed by Crane Engineering, a commercial-grade supplier. FME's dedication procedures stated in part that:

"Certified Material Test Reports, functional test results, or other test results used to substantiate material verification will be from suppliers, which have been audited or surveyed triennially. Other independent tests, analyses, or inspections performed at FME can also substantiate information from non-audited suppliers."

The inspectors determined that FME had not performed a survey of Crane Engineering, and therefore incorrectly took credit for Crane Engineering's functional test. This issue has been identified as Nonconformance 99901378/2008-201-03.

The inspectors did not identify any significant issues with the dedication packages noted in the Attachment to this inspection report.

c. Conclusion

The inspectors identified one nonconformance to 10 CFR Part 50, Appendix B. Nonconformance 99901378/2008-201-03 was cited for failure to perform: 1) a survey of Crane Engineering, or 2) independent testing for the functional test of a jacket water pump. With the exception of the nonconformance noted above, the inspectors concluded that FME is generally implementing a commercial-grade dedication process in compliance with regulatory requirements and industry guidance.

4. Audits

a. Inspection Scope

The inspectors reviewed Section 18, "Audits," of FME's QAM and implementing policies and procedures that govern the process for internal and external audits. The inspectors evaluated a sample of internal audit reports and qualification records to verify compliance with the program requirements.

b. Observations and Findings

The inspectors noted that Section 18 of FME's QAM provided a description of the process and requirements for performing internal and external audits. Standard Practice 120.10 "Internal and External Audits," dated April 2008, provided specific requirements, such as audit plans, checklists, and reports for all FME audits. The inspectors noted that FME's form BFC5318C, "Audit Plan and Report," required FME auditors to list revision levels of procedures reviewed. However, the inspectors noted that most of the audit plans reviewed did not include the revision levels audited. FME's QA manager took note of this administrative oversight and planned to correct it.

The inspectors noted that FME performed internal audits of each section of its QAM at least once every 24 months. The inspectors verified, in the sample of audits reviewed, that FME auditors met the requirements of the QAM. The inspectors noted that FME auditors initiated CARs when deficiencies were identified. The inspectors verified that FME took appropriate action to correct any deficiencies identified in these CARs.

The inspectors noted that FME performed external audits based on historical performance, complexity or criticality of products provided, and adequacy of corrective actions. FME's audit schedule was based on a period of less than 3 years for nuclear dedication to ensure ongoing compliance with NRC Regulatory Guide 1.28, Section 3.2. The inspectors verified that FME's recent audits of the following suppliers met the requirements of 10 CFR Part 50, Appendix B, Criterion XVIII "Audits":

- Terex Powertrain, in Aberdeenshire, United Kingdom, on August 21, 2008
- Nuclear Logistics Inc., in Fort Worth, Texas, on August 20, 2008
- Viking Pump, in Cedar Falls, Iowa, on August 22, 2007

- Flowserve Pump Inc., in Memphis, Tennessee, on August 6, 2007
- Tech Development Inc, in Dayton, Ohio, on July 3, 2007
- Woodward Governor, in Loveland, Colorado, on April 25, 2007

Finally the NRC Inspectors verified that a sample of FME's qualification records for auditors met the program requirements.

c. Conclusion

The inspectors concluded that FME's audit program requirements and implementation were consistent with the regulatory requirements of Criterion XVIII of Appendix B to 10 CFR Part 50. No findings of significance were identified.

5. Exit Meeting

On September 12, 2008, the inspectors presented the inspection scope and findings during an exit meeting with FME President, Anthony Gioffredi, and other FME personnel.



## ATTACHMENT

### 1. PERSONS CONTACTED

T. Gioffredi, President, FME  
D. Dedolph, Manager, Quality Assurance, FME  
D. Beason, Engine Kitting Supervisor, FME  
S. Bednarcik, Vice President, Finance, FME  
B. Berghoefer, Division of Aftermarket Sales, FME  
M. Braun, Production Control Manager, FME  
T. Carter, Senior QA Engineer, FME  
J. Conway, Quality Engineer, FME  
M. Cunningham, Engineering Manager, FME  
M. DuVarney, Inventory and Traffic Manager, FME  
A. Elovic, Vice President, Operations, FME  
J. Eves, Engineering Manager, FME  
G. Gliniecki, Quality Engineer, FME  
L. Graeber, Vice President, Engineering and Project Management, FME  
G. Hackl, Engineering Liaison, FME  
D. Johnson, Quality Engineer, FME  
K. Kennedy-Stuessy, Senior Inside Sales, FME  
D. Lang, Manager, Facilities and Maintenance, FME  
J. Mayhew, Manager, Design and Drafting, FME  
R. Miles, Senior Commodities Manager, FME  
G. Miller, Director, Aftermarket Operations, FME  
D. Mowry, Director, Engine Operations, FME  
G. Parker, Nuclear Projects Engineer, FME  
B. Schoenike, QA Supervisor, FME  
T. Schram, Vice President, Supply Chain, FME  
T. Stevenson, Manager, Parts, FME  
T. Watkins, Manager, Warehouse Operations, FME  
M. Wester, Vice President, Sales and Marketing, FME

### 2. INSPECTION PROCEDURES USED

IP 36100, "Inspection of 10 CFR Parts 21 and 50.55(e) Programs for Reporting Defects and Noncompliance"  
IP 38703, "Commercial Grade Dedication"  
IP 43004, "Inspection of Commercial-Grade Dedication Programs"

### 3. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

There were no NRC inspections of FME's facility in Beloit, Wisconsin in the previous five years.

<u>Item Number</u>	<u>Status</u>	<u>Type</u>	<u>Description</u>
99901378/2008-201-01	Opened	NOV	21.21 Evaluations
99901378/2008-201-02	Opened	NOV	21.31 Procurement Docs
99901378/2008-201-03	Opened	NON	Criterion VII

4. LIST OF DOCUMENTS REVIEWED

- FME order 40065512 for a single wall 34-inch blower for Exelon/PECO PO 90014791
- FME order 40063670 for a lube oil pump for Indian Point Unit 2 for Entergy PO 10182141
- FME order 40063155 for a Woodward governor for First Energy PO 45253951
- FME order 40062877 for a pump assembly for First Energy PO 55102343
- FME order 40062798 for a Woodward governor for Wolf Creek Nuclear Operating Corporation PO 740814/0
- FME Order 40061378 for North Anna for Dominion Generation PO 45533103 for:
  1. five unloader valves for Quincy air compressor (part number 7970X1)
  2. four gaskets for radiator assembly (5-bolt) for EDG (part number 11850870)
  3. three gaskets for radiator assembly for EDG (part number 11866434)
- FME order 40060167 for a cylinder head for Seabrook PO 02210384
- FME Order 40060052 for 14 injector assemblies (part number P12601021) for Millstone for Dominion Generation PO 45514603
- FME order 40058511 for a clamp-tube with neoprene cushion for North Anna for Dominion PO 45492700
- FME order 40056272 for an ASME III jacket water pump for First Energy PO 45207711
- FME order 40056547 for an unloader air start motor for Pilgrim Nuclear Power Station for Entergy PO PS06-11042
- FME Order 40058151 for a Woodward control speed governor (part number P12604452) for Millstone for Dominion Generation PO 45486831
- FME Order 40053554 for Arkansas Nuclear One for Entergy PO 10128825 for
  1. two elbows (part number 16112362)
  2. two hose assemblies (part number 11865696)
  3. one tube (part number 91201289-007)
  4. seven connectors (part number 92011114)
  5. six pipe assemblies (part number 16108401)
  6. eight clamps (part number 91800694)
  7. 10 tubes (part number 91200820-076)
  8. one joint, Flexmaster (part number 16107687)
  9. four gaskets (part number 16107792)
  10. eight clamps (part number 91800699)
  11. one check angle valve – unshipped

- FME order 40053397 for a pump set, engine pre-lube for Public Service Electric & Gas (PSE&G) PO 4500355484
- FME order 40052532 for a lube oil pump for Indian Point Unit 3 for Entergy PO 4500548562/10191624
- FME order 40050952 for a fuel oil assembly pump and drive for PSE&G PO 4500329692

5. LIST OF ACRONYMS USED

CAR	Corrective Action Request
CCV	Critical Characteristics Verification
CFR	Code of Federal Regulations
DE	Division of Engineering
ECO	Engineering Change Order
EDG	Emergency Diesel Generator
EQVB	Quality and Vendor Branch
FME	Fairbanks Morse Engine
IP	Inspection Procedure
NCR	Nonconformance Report
NLI	Nuclear Logistics Incorporated
NRC	Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
NON	Notice of Nonconformance
PO	Purchase Order
QA	Quality Assurance
QAM	Quality Assurance Manual