CURTISS WRIGHT Flow Control Company
EMD

1000 Wright Way
Cheswick, PA 15024

January 18, 2009
PQI-2010-002

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk, Docket No. 99901383
Washington, DC 20555-0001

To Whom it May Concern:

Subject: Reply to NRC Inspection Report No. 99901383/2009-201, Notice of Violation and Notice of Nonconformance

This letter is in response to the Nuclear Regulatory Commission's inspection conducted at EMD, a Business Unit of Curtiss Wright Flow Control Company, Cheswick, Pennsylvania, October 19 through October 23, 2009.

Attached is EMD's response to Inspection Report No. 99901383/2009-201, Notice of Violation, and the two Notices of Nonconformance.

EMD appreciates the thoroughness and professionalism demonstrated by the NRC inspectors during their visit and is committed to addressing the issues identified and to improving our Quality Program.

Thank you for your time and attention.

If you have any questions or concerns, please contact me at 724-275-5671, sshannon@curtisswright.com, or at the address listed above.

Sincerely,

Stewart A. Shannon

Stewart A. Shannon, Director
Performance & Quality Improvement

Attachment: Response to NRC Inspection Report 99901383/2009-201 with Supplements 1-3

cc: Mr. Juan Peralta, Chief, Quality and Vendor Branch 1, Division of Construction Inspection and Operational Programs, Office of New Reactors, United States Nuclear Regulatory Commission, Washington, DC 20555-0001

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Supplement 1
EMD Reply to Violation 99901383/2009-201-01

NRC Statement of Violation

EMD's 10CFR21 implementing procedure IDPQ02, "Identification and Reporting of Conditions Adverse to Safety Per 10CFR21" did not provide procedural guidance for: 1) evaluating deviations and failures to comply associated with substantial safety hazards within 60 days of discovery; 2) submitting an interim report to the NRC if an evaluation of an identified deviation or failure to comply cannot be completed within 60 days of discovery; 3) notifying the Curtiss Wright-EMD responsible officer within five days when it is determined; 4) notifying the affected purchasers or licensees if Curtiss Wright-EMD does not have the capability to perform the evaluation to determine if a defect exists; 5) notifying the NRC of defects and failures to comply (i.e., initial and written notification).

In addition, Curtiss Wright-EMD failed to make an interim report regarding a Part 21 evaluation that was ongoing for more than 60 days after discovery.

Reason for the Violation

EMD agrees this is a violation. As the NRC knows, these issues were self-identified in September 2009 during an internal audit and corrective action documents were initiated (CAR 2009-00315 and CAR 2009-00316) to address the Part 21 issues. These documents were reviewed by the NRC Inspection Team during their inspection.

The reason for the violation was a lack of understanding of the 10CFR21 requirements. Consequently, the controlling procedure did not adequately address the 10CFR21 requirements and did not provide adequate direction to EMD personnel with respect to the required reporting requirements.

Corrective Steps that have been Taken and the Results Achieved

EMD has revised Interdepartmental Procedure IDPQ02, "Identification and Reporting of Conditions Adverse to Safety Per 10CFR21," to address each of the areas not properly controlled. The revised procedure provides the requirements for reporting a potential condition, as required per Part 21. Specifically, it clearly states that EMD has 60 days from discovery to evaluate the condition; to submit an interim report to the NRC within five days of the determination that EMD cannot perform the evaluation within 60 days; to notify the General Manager within five days of completion of the evaluation that a defect that could cause a substantial safety hazard exists; to notify the affected customer(s) within five days if EMD does not have the capability to perform the evaluation to determine if a defect exists; to notify the NRC through the General Manager's office within 48 hours of receipt of information identifying a defect or failure-to-comply; and to initiate a written report from the General Manager to the NRC within 30 days of notification that a defect exists.

Supplement 1 (Continued)
EMD Reply to Violation 99901383/2009-201-01

Additionally, EMD provided classroom training on Part 21 requirements to 183 engineers, professionals, and managers July through September 2009 to ensure personnel understand the specific Part 21 requirements. The NRC Inspection Team reviewed the training material while performing the inspection. As a result of the classroom training, similar to the presentations at the NRC's December 2008 workshop, responsible personnel are knowledgeable of the Part 21 requirements, including reporting requirements of potentially reportable conditions.

Prior to the NRC inspection, EMD had reviewed all Part 21 reports on file and identified a discrepancy with one of the Part 21 reports, as discussed in the NRC Statement of Violation. EMD had discovered that although the evaluation was completed by design engineering within the 60-day requirement and the evaluation determined that the reported concern was in compliance with contractual design requirements, the Part 21 report remained open, at the originator's request for further analysis. Subsequently, the engineering analysis group reviewed the structural and stress analyses and concurred with design engineering's disposition, but this additional verification process caused the report to exceed the 60-day reporting requirement.

With the implementation of the revised procedure, personnel training, and well-defined reporting requirements, a similar incident will be avoided in the future.

Corrective Steps that will be Taken to Avoid Further Violations

EMD believes that the changes made to Interdepartmental Procedure IDPQ02, the initial classroom training provided, and the additional procedural training will prevent recurrence of the Part 21 issues identified.

Date when Full Compliance will be Achieved

The EMD Part 21 Interdepartmental Procedure IDPQ02, "Identification and Reporting of Conditions Adverse to Safety Per 10CFR21," has been revised and issued.

Personnel training to the revised procedural requirements will be completed by February 19, 2010.

Supplement 2
EMD Reply to Nonconformance 99901383/2009-201-02

NRC Statement of Nonconformance

The Notice of Nonconformance states, in part, that CWFC-EMD Design Specification DS10031, "AP1000 Reactor Coolant Pump External Heat Exchanger Design Specification, Revision 0," did not include 1) the necessary references to the design bases (NCA-2140, Design Bases) as required by NCA-3252(a)(2) or 2) reference to other appropriate documents which specify any additional operating requirements (NCA-3252(a)(6) for the external heat exchanger design.

Reason for the Noncompliance

While EMD agrees that we did not clearly make reference to supporting documents used as the design bases for Design Specification DS10031, "Reactor Coolant Pump External Heat Exchanger, Revision 0," we believe that the requirements for identifying references are not definitive within the ASME Code as discussed in our response below.

During the Nuclear Regulatory Commission's inspection of EMD's quality program, it was noted that Design Specification DS10031 did not clearly make reference to the design bases from the component's design specification, "AP1000 Reactor Coolant Pump Design Specification, Revision 1," APP-MP01-M2-001, and EMD internal analyses/calculation reports. The cause of this nonconformance was EMD's interpretation of the ASME Section III Code requirements in NCA-3252. The design bases, as specified in NCA-3252(a)(2), and discussed in NCA-2140, are required within the design specification. However, references to the design bases are not specified as required content in a design specification. The Code states that the design requirements must be included in the design specification and identify the loadings, combinations of loadings, and establish the appropriate Design, Service, and Test Limits for each component, which EMD correctly transferred to DS10031.

Additionally, NCA-3252(a)(6) was interpreted by EMD as being applicable only when "operability of a component is a requirement." As discussed in ASME Section III, Nonmandatory Appendix B, Paragraph B-2200, "operability" defines pumps and valves as performing an active mechanical motion to accomplish a system safety function or following a specific plant event. Nonmandatory Appendix B does not address heat exchangers. The external heat exchanger associated with the RCP as addressed in DS10031 does not perform an active mechanical motion, and as such, would be categorized as a passive component; no mechanical motion required for operability. As designed, the external heat exchanger is required to function as part of the pressure boundary, but is not relied upon for plant/system coast down flow, which is the safety function of the Reactor Coolant Pump.

Corrective Steps that have been Taken and the Results Achieved

Design engineering reviewed "AP1000 Reactor Coolant Pump Design Specification, Revision 1," APP-MP01-M2-001, and EMD internal reports to ensure that the design bases' operating parameters were correctly translated into Design Specification DS10031 and all parameters were correctly translated.

Supplement 2 (Continued)
EMD Reply to Nonconformance 99901383/2009-201-02

Additionally, design engineering held training meetings to discuss and familiarize personnel with the ASME Code requirements associated with Design Specification.

EMD initiated Corrective Action Request (CAR) 2009-00372 to internally address and track this issue to closure.

Corrective Steps that will be Taken to Avoid Noncompliance

Design Specification DS10031 will be revised to add reference to the AP1000 Reactor Coolant Pump Design Specification and to applicable EMD analyses/calculation reports that will address the absence of references to design bases for the operating requirements. This will be performed prior to the post-test final design review of the AP1000 RCP. Additionally, EMD will add a statement that there are no operability requirements related to mechanical motions associated with the external heat exchanger, that is, the external heat exchanger is a passive component.

EMD will revise Interdepartmental Procedure IDPE21, "Design and Equipment Specifications," and the attachment, "Guide to Specification Contents for Commercial Nuclear Equipment," to state that references to design bases and operability requirements must be included in a design specification, and EMD will provide procedural training in accordance with the quality program.

Date when Corrective Action will be Completed

Design Specification DS10031 will be revised to address the items discussed prior to post-test final design review scheduled for February 28, 2011.

Revision to Interdepartmental Procedure IDPE21 and the attachment will be completed by April 30, 2010.

Personnel training to the revised procedural requirements will be completed by May 28, 2010.

Supplement 3
EMD Reply to Nonconformance 99901383/2009-201-03

NRC Statement of Nonconformance

The Notice of Nonconformance states, in part, that the CWFC-EMD Quality Assurance Program Manual, Section 3.5.1 requires design reviews and EMD's IDPE22, "Checking Design Calculations and Design Verification" requires that the Design Review Chairperson and Lead Engineer perform the applicable design reviews and sign and date each action item chit form to document their review of the technical content, which did not occur for 121 design review action item chit forms, related to the AP1000 reactor coolant pump flywheel and AP1000 RCP pressure boundary components, and seismic analysis design reports; the applicable design reviews were not documented by signature and date as required by procedure.

Reason for the Noncompliance

EMD agrees with the nonconformance in that we did not comply with the requirements of our Quality Assurance Program Manual and internal procedure. The nonconformance occurred due to misinterpretations of requirements of Interdepartmental Procedure IDPE22, "Checking Design Calculations and Design Verification." EMD interpreted the procedure to only require the Design Review Chairperson and Lead Engineer to sign "closed" chits, thereby signifying that the issue was addressed.

Corrective Steps that have been Taken and the Results Achieved

EMD has reviewed all AP1000 Design Review Chits to ensure that both the Lead Engineer and Design Review Chairman signed each as required per Interdepartmental Procedure IDPE22. All chits have been reviewed and signed by the Lead Engineer and Design Review Chairman.

EMD initiated Corrective Action Request (CAR) 2009-00376 to internally address and track this issue to closure.

Corrective Steps that will be Taken to Avoid Noncompliance

Responsible personnel will be retrained on the requirements of Interdepartmental Procedure IDPE22 to ensure strict compliance with procedural requirements. Additionally, an annual self-assessment will be conducted to verify that strict adherence to the procedure is being maintained including signature requirements.

Date when Corrective Action will be Completed

Full compliance will be February 19, 2010.