

**NRC TRAVEL TRIP REPORT**  
**Nuclear Procurement Issues Committee (NUPIC) observation at**  
**MPR Associates, Inc.**

**Traveler, Office, Division, Phone Number:** Richard Rasmussen, Branch Chief, Electrical Vendor Branch (CEVB), Division of Construction Inspection & Operational Programs (DCIP), (301) 415-1340; Edward Roach, Branch Chief, Mechanical Vendor Branch (CMVB), DCIP, (301) 415-1973; Reactor Operations Engineer, CEVB, DCIP, (301) 415-1145.

**Subject:** Nuclear Regulatory Commission (NRC) observation of a Nuclear Procurement Issues Committee (NUPIC) audit at MPR Associates, Inc. (MPR).

**Dates of Travel and Organizations Visited:** April 8-12, 2013/MPR Associates, Inc., Alexandria, VA.

**Desired Outcome:** To verify, by direct observation, the effectiveness of the independent oversight activities performed by NUPIC to qualify vendors in accordance with the requirements of Appendix B, "Quality Assurance Program Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities."

**Results Achieved:** The NRC inspection team verified that NUPIC effectively implemented their audit process. The NRC inspectors noted that, while effective, at least one additional technical specialist would have enhanced the technical rigor of the performance based review.

**Summary of Trip:** MPR, located at 320 King Street, Alexandria, VA 22314, supplies engineering services including design, software application and development, commercial grade dedication, and failure analysis. MPR also provides replacement equipment to operating nuclear power plants such as emergency diesel generator (EDG) excitation and other control systems.

The NUPIC audit team consisted of five audit members and one technical specialist. The objective of the NUPIC audit was to use the NUPIC audit checklist to determine the acceptability and verify the effective implementation of MPR's quality assurance (QA) program in accordance with the requirements 10 CFR Part 50 Appendix B, ANSI N45.2, "Quality Assurance Requirements for Nuclear Facility Applications," and 10 CFR Part 21. For the audit observation, the three NRC inspectors each selected a sample of the audit checklist review areas for verification. The NRC inspectors observed NUPIC's review and evaluation processes for the implementation of MPR's QA program for ensuring design requirements and associated design specifications were adequately incorporated into the engineering, qualification, and dedication processes. The NUPIC audit and audit checklist also addressed software QA.

MPR provided its QA manual and other implementing procedures to the NUPIC audit team. The audit team reviewed the implementation of the requirements of 10 CFR 50, Appendix B in the QA program and supporting implementing procedures, evaluated the documentation associated with the activities that had been performed, and discussed the activities with MPR personnel. NUPIC and the NRC also observed ongoing work and inspection activities, including receipt inspection and testing.

Enclosure

The NUPIC audit team conducted daily team meetings to discuss observations and findings. The NRC inspectors observed these meetings to verify that the NUPIC audit team was adequately addressing issues and effectively verifying the implementation of QA requirements

The areas reviewed during the audit include the following: contract review, design, commercial grade dedication, software quality assurance, procurement, tests, inspections, and calibration, document control/adequacy, organization/program, nonconforming items/part 21, internal audit, corrective action, training/certification, records. MPR submitted a Part 21 report to the NRC on March 29, 2013, regarding the failure of a replacement EDG excitation system at the Cooper Nuclear Station. The audit team evaluated the root cause analysis report and focused on the technical and programmatic issues that caused this failure throughout the audit. The audit team's technical specialist used the Performance Based Supplemental Audit worksheet to review 1) determination of process gaps leading to EDG excitation system failure, 2) commercial supplier oversight of Basler and Energy Steel & Supply, 3) training for users of the motor-operated valve Performance Prediction Methodology (PPM) software, 4) PPM software installation controls, and 5) extent of condition of the EDG excitation system issues on a Maguire project.

At the exit meeting, the audit team presented five potential findings to MPR management. The first finding was in the area of procedures. The audit team identified that MPR's procedure for procurement document control did not adequately address acquisition of software, specifically error reporting. Additionally, the audit team identified that MPR procured license renewals for software out of compliance with the procedure. The second finding was in the area of Part 21 and nonconformances. The audit team identified that MPR did not evaluate five NCRs for Part 21 applicability. The team also identified segregation and administrative issues with nonconforming item processing. The third finding was in the area of dedication. The audit team identified that MPR was not consistently documenting which critical characteristics were controlled by the supplier and covered by the surveyed. The fourth finding was in the area of corrective action. The audit team identified that MPR did not document process-driven interim corrective actions to address the root cause of CR 2012-063 for the failure of a diesel excitation system. The audit team recommended an order entry consideration for NUPIC members relating to this finding. The fifth finding was in the area of training. The audit team identified that MPR did not have procedures or records for training of personnel using PPM software as required by a condition on the NRC endorsement of EPRI Topical Report TR-103237, "EPRI MOV Performance Prediction Program."

The NRC inspectors observed all of the NUPIC audit team members perform in part their portion of the audit. The NRC inspectors found that the NUPIC audit team adequately addressed the specific areas of the checklist on which the NRC inspectors focused their review. The NRC inspectors reviewed the training and qualifications of the NUPIC audit team members and found that they were fully trained and qualified to conduct the audit. The NUPIC auditors supported their findings with comprehensive objective evidence and went to sufficient depth in their respective areas of focus. Findings and recommendations were clearly and thoroughly communicated to MPR management. During the NUPIC audit critique, the team recommended that future audits of engineering firms like MPR could benefit from an additional technical specialist. The NRC inspectors also noted that at least one additional technical specialist would have enhanced the technical rigor of the performance based review.

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

concluded that the NUPIC checklist was effectively implemented by the audit team and effectively utilized performance-based samples of the areas covered.

**Pending Actions/Planned Next Steps for NRC:** The NRC will review the finalized NUPIC report and, if needed, address any new information that was not addressed in the audit exit meeting on Friday, April 12, 2013.

**Points for Commission Consideration/Interest:** The content of this report is not likely to be of interest to the Commission. No issues were identified where Commission action or guidance is required.

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