NRC INTERNATIONAL TRAVEL TRIP REPORT
Nuclear Procurement Issues Committee (NUPIC) observation at Kinectrics Inc.

Traveler, Office, Division, Phone Number: Richard Rasmussen, Branch Chief, Quality and Vendor Branch 2 (CQVB), Division of Construction Inspection & Operational Programs (DCIP) (301)415-1340; Stacy Smith, Reactor Operations Engineer, DCIP/CQVB (301)415-6025.

Subject: NRC observation of a NUPIC audit at Kinectrics Inc.

Dates of Travel and Countries/Organizations Visited: April 10-16, 2011/Toronto, ON, Canada

Desired Outcome: To verify through NRC observation that NUPIC audits remain as an acceptable alternative to the NRC's vendor inspection/audit program. This trip will also support the Multinational Design Evaluation Program (MDEP) by inviting members of the Canadian Nuclear Regulator (CNSC) to observe the NRC's NUPIC oversight process.

Results Achieved: The NRC inspection team verified that NUPIC effectively implemented their audit process and that this process was an acceptable alternative to the NRC's vendor inspection/audit program. In addition, NRC and CNSC inspectors discussed vendor inspection practices and the NRC was able to demonstrate the implementation of the NRC NUPIC oversight process.

Summary of Trip: Kinectrics Inc. is an international vendor for safety related engineering services including environmental and seismic qualification, design engineering, and commercial grade dedication (CGD) of components in the U.S. market. Kinectrics is currently under contract for the environmental qualification of the prototype containment electrical penetrations for the AP1000 in addition to multiple contacts for CGD for relays and breakers and environmental and seismic qualification of panels and concrete for U.S. nuclear power plants.

The NUPIC audit team consisted of seven audit members, one in training, and two technical specialists. The NUPIC audit scope was to determine the acceptability and verify the effective implementation of Kinectrics' quality assurance requirements, through the use of the NUPIC audit checklist, in accordance with the requirements of the *Code of Federal Regulations* (10CFR) Part 50 Appendix B, ASME NQA-1-2008, "Quality Assurance Requirements for Nuclear Facility Applications," and 10CFR Part 21. For observance of the conduct of the audit, the NRC divided a sample of the audit checklist review areas between the two inspectors. The NRC observed NUPIC's review of the implementation of Kinectrics QA program and evaluation processes for ensuring design requirements, including IEEE requirements, and associated design specifications were adequately incorporated into the qualification, engineering, and dedication processes. An additional area not explicitly addressed by Appendix B which was covered by the NUPIC audit team and checklist was software quality assurance.

Kinectrics provided the quality assurance manual and other lower tier documents. To begin their inspection, auditors selected documents from lists of quality assurance operating procedures. The audit was performed by reviewing the requirements of the QA program and supporting implementing procedures, evaluating the documentation associated with the activities that had been performed, and discussing the activities with Kinectrics personnel. Observations of ongoing work and inspection activities, including receipt inspections, environmental qualification of the prototype electrical penetration assembly for the AP1000, and test verifications were also performed by NUPIC, the NRC and CSNC.

Daily team meetings were conducted by NUPIC to discuss observations and findings. NRC representatives observed these meetings to verify that the NUPIC audit team was adequately addressing issues and effectively verifying the implementation of quality assurance requirements. In addition, after the daily NUPIC team meetings the NRC and the CNSC discussed similarities and differences between programs, policies, and practices between the two regulatory bodies. These discussions fostered sharing of international experiences related to the construction of new reactors and oversight of vendors with representatives from CNSC.

Areas examined during the audit included: contract review; design; commercial grade dedication; software quality assurance; procurement; fabrication/assembly activities; material control and handling; storage and shipping; special processes; tests; inspection and calibration; document control/adequacy; organization/program; nonconforming items; 10CFR Part 21; internal audit; corrective action; training/certification; field services, and; records.

At the exit meeting, the audit team presented three findings and several recommendations to Kinectrics' management. The first finding was in the area of commercial grade dedication. The audit team identified that Kinectrics was not consistently identifying and documenting the safety functions of the items that they were dedicating. Because the safety function was not always documented the NUPIC team could not determine the critical characteristics were appropriately selected for the dedication packages that were sampled. The second finding was in the area of procedural development and compliance. The audit team identified that Kinectrics was not consistently documenting nonconformances in accordance with their quality assurance manual and operating procedures. The third finding was in the area of software. The audit team identified that Kinectrics was not meeting their quality assurance manual, specifically their commitment to ASME NQA-1 2008, in the area of software life cycle management and methods of evaluating, reviewing, and documenting software problems. These NUPIC findings and recommendations were preliminary. The final report had not yet been issued when this trip report was finalized. The audit team also had several recommendations in the areas of testing documentation, design process, and records.

All NUPIC audit team members were observed in part or in whole on their portion of the audit conducted. Specific areas of the checklist that the NRC focused on for review were adequately addressed by members of the NUPIC audit team. Training and qualifications of the NUPIC audit team members were reviewed. All team members 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 Kinectrics' management.

Based on the program elements that were audited, the NUPIC audit team determined that Kinectrics was effectively implementing its' quality assurance program, except for those elements where deficiencies were identified. The audit team concluded that the findings had no impact on product quality. The NRC concluded that the NUPIC audit process was effectively implemented by the audit team and resulted in a reliable performance based review 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 15, 2011.

The NRC will also evaluate the finding related to commercial grade dedication to ensure NRC inspection guidance includes sampling of licensee work packages using items that were procured using the CGD process. This evaluation should ensure that the application is in fact consistent with the safety function utilized by the dedicating entity to determine the critical characteristics.

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.

The NRC will also evaluate the finding related to commercial grade dedication to ensure NRC inspection guidance includes sampling of licensee work packages using items that were procured using the CGD process. This evaluation should ensure that the application is in fact consistent with the safety function utilized by the dedicating entity to determine the critical characteristics.

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

Distribution
J Tappert K Kavanagh
ADAMS ACCESSION No.: ML111101420 NRO-001

OFFICE	CQVB/DCIP/NRO	BC:CQVB/DCIP/NRO
NAME	SSmith	RRasmussen
DATE	4/27/2011	4/27/2011

OFFICIAL RECORD COPY