

## **NRC INTERNATIONAL TRAVEL TRIP REPORT**

**Country:** Canada

**Subject:** Nuclear Regulatory Commission (NRC) observation of a Nuclear Procurement Issues Committee (NUPIC) audit at Curtiss-Wright Nuclear Canada (CWNC), formally known as Nuclear Power Services Inc. (NPSI).

**Travelers, Office, Division, Phone Number:**

- Aaron Armstrong, Team Leader, Reactor Operations Engineer, Quality Assurance Vendor Inspection Branch (QVIB), Division of Construction Inspection & Operational Programs (DCIP), (301) 415-8369;
- Eugene Huang, Reactor Operations Engineer, Electrical Vendor Inspection Branch (EVIB), DCIP, (301) 415-4140.

**Travel Dates and Location:**

August 24-29, 2014 Curtiss-Wright Nuclear Canada (NPSI), Newmarket, Ontario, Canada.

**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 inspection team noted that, while this process is currently effective to ensure NUPIC checklist completion, more communication between the auditors for overlapping areas may have been useful in preventing missed opportunities in the future.

**Summary of Trip:**

CWNC supplies qualified products and services to the international nuclear utility market (and its suppliers) in Canada, United States, Asia, and Europe. Services include commercial grade dedication, equipment qualification, environmental and seismic testing, as well as equipment repair and refurbishment and a variety of training services. CWNC provides a full suite of qualification services for the nuclear power industry, either to Appendix B to 10 CFR 50, American Society of Mechanical Engineers (ASME) NQA-1, or the Canadian Standards Association requirements. Activities include Seismic Qualification, Electromechanical Compatibility (EMC), Thermal Aging, and Environmental Qualification. CWNC provides training in Counterfeit, Fraudulent and Suspect Items, Commercial Grade Dedication, Supply Strategy and Procurement, Seismic, and Quality Assurance.

The NUPIC audit team consisted of seven 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 CWNC's quality assurance (QA) program in accordance with the requirements Appendix B to 10 CFR Part 50 Appendix B, ASME NQA-1-1994, "Quality Assurance Requirements for Nuclear Facility Applications," and 10 CFR Part 21. For the audit observation, the two 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 CWNC's QA program for ensuring design requirements, including ASME requirements, and associated design specifications were adequately incorporated into the qualification, engineering, and dedication processes. The NUPIC audit and audit checklist also addressed software QA.

CWNC provided its QA manual and other implementing procedures to the NUPIC audit team. The audit team reviewed the implementation of the requirements of Appendix B to 10 CFR 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 CWNC personnel. The audit team observed work practices to verify activities were in accordance with applicable procedures.

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

At the exit meeting, the audit team presented three potential findings and one observation to CWNC management. The first finding was in the area of Design Control. The audit team identified that CWNC's design verification plan was not generated as required by Engineering Change Notice (ECN) 679, which was applicable to Calvert Cliffs Nuclear Power Plant purchase order (PO) 428853 for the Wärtsilä Diesel Field Flash and Overspeed Switch Refurbishment project. The second finding was in the area Procurement Document Control. The audit team identified that CWNC failed to identify that PO10143 issued to M+P Labs, PO 10428 issued to Draco, and PO 10142 issued to Laboratory Testing did not reference the sub-suppliers approved quality program manual and revision. In addition, PO 11058 was issued to TRANSCAT located in Portland, OR, which was not listed on CWNC's approved suppliers list. The third finding was in the area of Handling, Storage, and Shipping. The audit team found no objective evidence that products with limited shelf life are identified with an expiration date and implementation of stock rotation. The team audit identified various products subject to shelf life requirements, such as shrinkable tubing, gaskets, O-rings, etc. These products were stored on the shelves in transparent bags and were exposed to ultraviolet lighting potentially impacting the product's shelf life.

The audit team observation identified that during a 2012 Internal Quality Audit, the CWNC QA Manager was included as an audit team member in the area of design control. The CWNC Document and Data Control procedure at the time of the audit stated that the QA Manager was one of only two persons allowed to "approve" design output documents. The audit team identified a possible conflict of interest and lack of independence may have existed for two

ECNs identified during that 2012 audit. The audit team verified the QA Manager did not actually approve the documents he had reviewed during the audit. The QA Manager's assignment to an Internal Quality Audit, while authorized to approve the documents he is reviewing (design output documents), could potentially create an independence issue. The above issue was presented, as an observation.

The NRC inspectors observed all of the NUPIC audit team members perform in part, or in whole, their portion of the audit. 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.

With the exception of the audit findings identified above, the NUPIC audit team determined that CWNC 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. The NRC inspectors also noted that compliance with the NUPIC checklist resulted in an audit that focused on program/process instead of performance based samples of the areas covered. The NRC noted that rigidity to the checklist areas may limit the audit team's ability to verify the implementation of Appendix B, especially when overlapping with audit areas covered by other team members. This was evident in the audit team's observation above regarding internal audits, where the audit inspector needed to delve into the procurement document control procedure to verify the type of design output documents that the QA manager could approve. Since procurement document control was covered by another audit team member, the auditor was not familiar with the procedure and quickly scanned it to find the applicable table that lists the QA manager's capabilities. However, the NRC inspectors noted that the auditor missed an applicable table on the following page and brought it to the auditor's attention. Had the NRC not intervened, the auditor would have missed the opportunity to chase down the issue which turned out to be an observation. The NRC inspectors noted that more communication between the auditors for overlapping areas may have been useful in preventing this situation in the future.

#### **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, August 29, 2014.

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