



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

August 13, 2019

MEMORANDUM TO: Chris Miller, Director Division of
Inspection and Regional Support
Office of Nuclear Reactor Regulation

FROM: Kerri A. Kavanagh, Chief **/RA/**
Quality Assurance Vendor Inspection Branch
Division of Inspection and Regional Support
Office of Nuclear Reactor Regulation

SUBJECT: TRIP REPORT BY THE NUCLEAR REGULATORY
COMMISSION STAFF OF THE NUPIC JOINT UTILITY TEAM
AUDIT AT WEIR VALVES & CONTROLS, INC

On June 24-28, 2019, Nicholas Savwoir and Aaron Armstrong of the Office of Nuclear Reactor Regulation, Division of Inspection and Regional Support, observed the performance of a Nuclear Procurement Issues Corporation (NUPIC) joint utility audit of Weir Valves & Controls, in Ipswich, MA. Arizona Public Service (APS) led the audit, with participation from DTE Energy, New Brunswick Power, South Carolina Electric & Gas Co., Southern Nuclear Operating Co., Public Service Enterprise Group (PSEG) Nuclear, and Bruce Power using the NUPIC checklist and performance-based supplier audit (PBSA) worksheet. The Weir Valves & Controls, INC audit number is 24794. The purpose of the staff's observation was to assess the NUPIC quality assurance audit process used for suppliers of components to the nuclear industry. The trip report of the staff's observations includes a list of NUPIC audit team members observed.

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SUBJECT: TRIP REPORT BY THE NUCLEAR REGULATORY COMMISSION STAFF OF THE NUPIC JOINT UTILITY TEAM AUDIT AT WEIR VALVES & CONTROLS USA, INC Dated: August 13, 2019

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NUCLEAR PROCUREMENT ISSUES CORPORATION AUDIT
OBSERVATION TRIP REPORT

Vendor Audited: WEIR VALVES & CONTROLS USA, INC
29 Old Right Rd,
Ipswich, MA 01938

Lead Licensee: APS

Lead Contact: Edward Porto
NUPIC Lead Auditor
Arizona Public Service
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Nuclear Industry Activity: The Ipswich site is Weir Valves & Controls valve fabrication facility and responsible for valve design and manufacturing. The site produces ASME Code and Non-Code safety-related valve assemblies, with and without actuators, parts, and appurtenances including repair services and parts.

Observation Dates: June 24 through June 28, 2019

Observers: Nicholas Savvoir, NRR/DIRS/IQVB
Aaron Armstrong, NRR/DIRS/IQVB

Approved by: Kerri A. Kavanagh, Chief
Quality Assurance Vendor Inspection Branch
Division of Inspection and Regional Support
Office of Nuclear Reactor Regulation

Subject

This trip report documents observations made by members of the U.S. Nuclear Regulatory Commission (NRC), Office Nuclear Reactor Regulation (NRR), Division of Inspection and Regional Support (DIRS), during a NUPIC joint utility audit conducted on June 24-28, 2019, at Weir Valves & Control in Ipswich, MA.

Background/Purpose

The Nuclear Procurement Issues Corporation (NUPIC) was formed in 1989, by a partnership involving all domestic and several international nuclear utilities. The NUPIC program evaluates suppliers furnishing safety-related components, services and commercial-grade items to nuclear utilities. The NUPIC audit was performed using Revision 21 of the NUPIC audit checklist and the results will be provided to NUPIC members that procure parts and services from Weir Valves & Controls.

The purpose of the NUPIC audit was to evaluate the implementation and effectiveness of Weir Valves & Controls Quality Assurance (QA) Program at the Ipswich, MA facility. The audit also included assessments of corrective action effectiveness that Weir Valves & Controls had taken for previous findings issued during the NUPIC 2016 Joint Utilities Audit and 2018 Limited Scope Audit. This 10-person audit team was led by APS with participation from DTE Energy, New Brunswick Power, South Carolina Electric & Gas Co., Southern Nuclear Operating Co., PSEG, and Bruce Power. The NUPIC audit team consisted of nine audit team members and one technical specialist. The technical specialist responsibility was to verify Weir Valves & Controls ability to control critical characteristics identified on the Performance Based Supplier Audit Worksheet.

The purpose of the NRC staff's observation of this audit was to ensure that the NUPIC audit process continues to meet the requirements of Appendix B, "Quality Assurance 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." The NRC staff implemented Inspection Procedure 43005, "NRC Oversight of Third-Party Organizations Implementing Quality Assurance Requirements," during the observation.

Observation Activities

The NRC observers independently assessed and reviewed Weir Valves & Controls' implementation of their QA program to evaluate whether NUPIC effectively identified and responded to issues. Weir Valves & Controls provided the QA manual, master document lists and implementing procedures to the NUPIC audit team. The NRC observed that NUPIC appropriately focused their audit efforts on Appendix B criteria most relevant to Weir Valves & Controls activities. In addition, the NRC staff observed the NUPIC technical specialist focused on the critical areas and the technical specialist's conclusions were reflective of Weir Valves & Controls performance. The NRC observers requested additional documents from Weir Valves & Controls engineering management in order to draw their own conclusion. The NRC observers also refrained from directing or leading NUPIC, as to not interfere with the conduct of NUPIC's audit.

The QA areas reviewed during the audit included the following: contract review, design, commercial-grade dedication (CGD), procurement, fabrication/assembly activities, material control and handling, storage and shipping, special processes, test, inspections and calibration,

internal audit, records, document control/adequacy, corrective action, nonconforming items and 10 CFR Part 21. The NRC observers accompanied NUPIC while they performed walkthroughs, observations of production, testing, and inspection activities, and Weir Valves & Controls personnel interviews.

Specific work activities reviewed by NUPIC, and observed by the NRC staff, included Weir Valves & Controls design packages and test report reviews, CGD process, customer approval process, interdepartmental document transmittals, document control center, document requisition system, engineering change and procedure change notices, receipt inspections and sampling process, annual supplier performance assessment, manufacturing orders, approved supplier list, counterfeit fraudulent suspect item (CFSI) training, controlled manufacturing system, triennial audits and annual over checks, International Laboratory Accreditation Cooperation (ILAC), identification of material tagging, in-process inspections, calibration services and certifications. In addition, NUPIC and the NRC observed Weir Valves & Controls performing plasma arc hard facing of a valve, penetrant testing activity for a valve component, and the material review board assessments of nonconforming parts located in the QA hold area.

Discussion

The NRC observers verified NUPIC adequately considered Weir Valves & Controls scope of supply and observed in-process work practices to verify activities were in accordance with applicable procedures. The NRC staff observed NUPIC's findings and deficiency determinations during internal NUPIC daily debriefs and briefings with Weir Valves & Controls personnel. The NRC observers also conducted daily debriefs with NUPIC's lead auditor.

While reviewing CGD packages, subsequently reviewed by the NUPIC audit team, the NRC staff identified Weir Valve & Control accepted a Tube Seal which exceeded the critical characteristic acceptance criteria. The NRC observers verified the CGD package was reviewed with the audit team and brought this to the NUPIC team lead's attention after the audit team conducted their daily debrief. As a result, the NUPIC technical specialist engaged Weir Valve & Control on this issue and Weir Valve & Controls issued a corrective action. It was determined the Tube Seal was accepted and shipped with a longer length because it was a cut to fit item. This was the only observation that NUPIC had not recognized an issue.

The NUPIC audit resulted in seven findings relating to contract review, CGD, procurement, corrective action, and training/certification. In addition, the NUPIC audit team identified repeat findings from the 2016 NUPIC audit. During the final day of the NUPIC observation, Weir Valves & Controls announced the completion of its sale to First Reserve. First Reserve is global private equity investment firm exclusively focused on energy. As a result of the sale to First Reserve, Weir Valves & Controls has changed its name to Trillium Flow Technologies.

Conclusion

The NRC staff verified a large sample of the NUPIC audit checklist review areas. Specifically, the NRC staff observed NUPIC's review and evaluation processes for the implementation of Weir Valves & Control's QA program contract review, design, CGD, procurement, fabrication/assembly activities, material control and handling, storage and shipping, special processes, test, inspections and calibration, internal audit, records, document control/adequacy, corrective action, nonconforming items and 10 CFR Part 21. The NRC staff concluded NUPIC auditors/technical specialist met expectations, and NUPIC's oversight of activities were effectively implemented.

List of Participants

Name	Title	Affiliation	Entrance	Exit
Edward Porto	Audit Team Leader	APS	X	X
Trevor Baker	Technical Specialist	APS	X	X
Jose A. Freire	Audit Team Member	APS	X	X
Diona Russell	Audit Team Member	DTE Energy	X	X
Roy Gregan	Audit Team Member	New Brunswick Power–	X	X
Pat Scouten	Audit Team Member	New Brunswick Power–	X	X
Frank McGee	Audit Team Member	South Carolina Electric & Gas Co.	X	X
Roland Bergeron	Audit Team Member	Southern Nuclear Operating Co.	X	X
Kurt Bittner	Audit Team Member	PSEG Nuclear LLC	X	X
Jorge Lopez	Audit Team Member	Bruce Power	X	X