



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

June 24, 2022

MEMORANDUM TO: Chris Miller, Director  
Division of Reactor Oversight  
Office of Nuclear Reactor Regulation

FROM: Kerri A. Kavanagh, Chief  
Quality Assurance and Vendor Inspection  
Branch Division of Reactor Oversight  
Office of Nuclear Reactor Regulation

SUBJECT: TRIP REPORT BY THE NUCLEAR REGULATORY  
COMMISSION STAFF OF THE NUPIC JOINT UTILITY  
TEAM AUDIT AT HYDROAIRE SERVICE, INC.

*Deanna Zhang* Zhang, Deanna signing on behalf  
of Kavanagh, Kerri  
on 06/24/22

On April 25-29, 2022, Odunayo Ayegbusi of the Office of Nuclear Reactor Regulation, Division of Reactor Oversight, observed the performance of a Nuclear Procurement Issues Corporation (NUPIC) joint utility audit of Hydroaire Service, Inc., in Chicago, IL. Wolf Creek Nuclear Operating Corporation led the audit, with participation from Entergy, Duke Energy, Ameren, Bruce Power, Comisión Federal de Electricidad, and Constellation Energy. The NUPIC team used the NUPIC checklist and performance-based supplier audit (PBSA) worksheet to perform the audit and the NUPIC audit report number is 25079. The purpose of the staff's observation was to assess NUPIC's quality assurance audit process for verifying that suppliers of components to the nuclear industry are effectively implementing their Appendix B compliant quality assurance program. The trip report of the staff's observations includes a list of NUPIC audit team members that participated in the audit.

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C.Miller

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SUBJECT: TRIP REPORT BY THE NUCLEAR REGULATORY COMMISSION STAFF OF  
THE NUPIC JOINT UTILITY TEAM AUDIT AT HYDROAIRE SERVICE, INC.  
Dated: JUNE 24, 2022

Enclosure:  
Trip Report

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<b>OFFICE</b>	NRR/DRO/IQVB	NRR/DRO/IQVB
<b>NAME</b>	OAyegbusi	KKavanagh/ DXZ1 for
<b>DATE</b>	06/24/2022	06/24/2022

**OFFICIAL RECORD COPY**

**NUCLEAR PROCUREMENT ISSUES CORPORATION AUDIT**  
**OBSERVATION TRIP REPORT**

Vendor Audited: Hydroaire Service, Inc.  
834 W. Madison St,  
Chicago, IL 60607

Lead Licensee: Wolf Creek Nuclear Operating Corporation

Lead Contact: Michael Buel  
NUPIC Lead Auditor  
Wolf Creek Nuclear Operating Corporation (WCNOC)  
[michael.buel@evergy.com](mailto:michael.buel@evergy.com)

Nuclear Industry Activity: The Hydroaire Service, Inc., Chicago, IL facility is responsible for the repair/refurbishment of ASME Code Class 1, 2, 3 pumps, safety-related pumps, reverse engineering, testing, pump & valve parts, and ferrous and non-ferrous materials used in the commercial nuclear industry.

Observation Dates: April 25 through April 29, 2022

Observer: Odunayo Ayegbusi, NRR/DRO/IQVB

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

Enclosure

## **Subject**

This trip report documents observations made by a staff of the U.S. Nuclear Regulatory Commission (NRC), Office Nuclear Reactor Regulation (NRR), Division of Reactor Oversight (DRO), during a Nuclear Procurement Issues Corporation (NUPIC) joint utility audit conducted on April 25-29, 2022, at Hydroaire Service, Inc., Chicago, IL (hereafter referred to as Hydroaire).

## **Background/Purpose**

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 of Hydroaire 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 Hydroaire.

The purpose of the NUPIC audit was to evaluate the implementation and effectiveness of Hydroaire's Quality Assurance (QA) Program at the Chicago, IL facility. The audit team was comprised of individuals from the following NUPIC member utilities: Constellation Energy, Duke Energy, Ameren, Entergy, Bruce Power, and Comisión Federal De Electricidad, and was led by Wolf Creek Nuclear Operating Corporation (WCNOC). The NUPIC audit team technical specialists' responsibility was to verify Hydroaire's ability to control critical areas identified on the Performance Based Supplier Audit Worksheet (PBSA).

The purpose of the NRC staff's observation of this audit was to confirm 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 staff independently assessed and reviewed Hydroaire's implementation of selected portions of their QA program to evaluate whether NUPIC effectively identified issues. Hydroaire provided the QA manual, implementing procedures, and samples of completed work products including, but not limited to, design packages, commercial grade item dedication plans, training and qualification records, and reverse engineering reports to the NUPIC audit team. The Hydroaire QA manual is based on the American Society of Mechanical Engineers (ASME) Nuclear Quality Assurance standard (NQA-1), 2015. The NRC staff observed that NUPIC appropriately focused their audit efforts on Appendix B criteria most relevant to Hydroaire activities. In addition, the NRC staff observed the NUPIC technical specialist focused on the critical areas described in the PBSA and the technical specialist's conclusions were drawn from a review of objective evidence reflective of Hydroaire's performance. The NRC staff reviewed samples of the documentation provided by Hydroaire for the audit team to draw independent conclusions. The NRC staff participated in discussions between the NUPIC audit team members and Hydroaire staff, while refraining from directing or leading NUPIC auditors, as to not interfere with NUPIC's conduct of its audit.

The QA areas reviewed during the audit included the following: contract review, design, commercial grade dedication, software quality assurance, procurement, fabrication/assembly activities, material control and handling, storage and shipping, special processes, tests, inspections and calibration, document control/adequacy, organization/program, nonconforming items/Part 21, internal audits, corrective action, and training/certification. The NRC staff accompanied the NUPIC team members while they performed walkdowns of portions of the facility, observed in-process production activities, including rotor balancing operation, commercial pump testing, control, handling and storage of safety related parts, and attended discussions between the NUPIC audit team members and Hydroaire personnel.

Specific work activities reviewed by NUPIC, and observed by the NRC staff, included, but were not limited to, Hydroaire design packages, purchase orders, procedure change notices, reverse engineering packages, receipt inspections and sampling process, identification of material tagging and nonconformance control, in-process inspections, and training and qualification records.

### **Discussion**

The NRC staff verified NUPIC adequately considered Hydroaire's scope of supply and observed in-process work practices and completed work products to verify activities were performed in accordance with Hydroaire's QA program description and applicable procedures. The NRC staff confirmed the NUPIC audit team was implementing the latest revision of the NUPIC audit checklist, Revision 21, and NUPIC Document No. 11, "Joint Audit & Checklist Implementation Guideline," Revision 24, to conduct their assessment activities. The NRC staff observed the NUPIC audit team members completing sections of the NUPIC checklist and documenting objective evidence to support the conclusions discussed during the daily team meetings. The NRC staff also observed NUPIC's process for evaluating potential findings and deficiencies, including discussions during daily NUPIC debriefing activities with Hydroaire personnel. The NRC staff discussed his observations with NUPIC's lead auditor and team members.

The NUPIC audit team concluded that Hydroaire is effectively implementing their QA program in accordance with the applicable requirements of Appendix B to 10 CFR Part 50 and 10 CFR Part 21. There were no findings identified from the audit; however, two deficiencies were identified in the following areas: material control and 10 CFR Part 21. The NRC staff observed that Hydroaire was generally receptive to the deficiencies identified by the NUPIC audit team, and initiated actions to address those concerns.

### **Conclusion**

The NRC staff observed the NUPIC audit team conduct an audit of Hydroaire's QA program. The NRC staff confirmed that the NUPIC audit team focused on the most relevant portions of the QA program consistent with Hydroaire's scope of supply and performed their assessment activities through a combination of direct observation of in-process work activities and a review of completed work products. The NRC staff confirmed that the NUPIC audit team adequately implemented the guidance in the NUPIC audit checklist, documented objective evidence to support their conclusions, and conducted the audit in a courteous and professional manner. The NRC staff concluded that the NUPIC auditors and technical specialist adequately completed their assigned programmatic elements in accordance with the NUPIC policies and procedures for conducting joint audit activities and resulted in a

thorough and comprehensive evaluation of Hydroaire's QA program implementation.

**List of Participants**

<b>Name</b>	<b>Title</b>	<b>Affiliation</b>	<b>Entrance</b>	<b>Exit</b>
Michael Buel	Audit Team Leader	Wolf Creek Nuclear Operating Corporation (WCNOC)	X	X
Robert Low	Technical Specialist	WCNOC	X	X
Earl Mayhorn	Audit Team Member	Ameren		X (telecon)
James Jones	Audit Team Member	Entergy	X	X
Robert Bunz	Audit Team Member	WCNOC	X	X
Jorge Lopez	Audit Team Member	Bruce Power	X	X
Ramon Alvarado	Audit Team Member	Comisión Federal de Electricidad	X	X
Gwen Sarli-Prelle	Audit Team Member	Constellation Energy	X	X
Carrie Wilson	Audit Team Member	Duke Energy	X	X
Odunayo Ayegbusi	NRC Staff	NRC	X	X

**Documents Reviewed**Hydroaire Service, Inc.

Nuclear Quality Assurance Manual – NQAM, Revision 2

PCP 029, “Balancing Procedure,” Revision 5

PCP 041, “10 CFR Part 21 Reportability,” Revision 10

PCP 033, “Reverse Engineering,” Revision 8

PCP 115, “Control of Nonconforming Items,” Revision 12

PCP 116, “Corrective Action Program,” Revision 7

NUPIC

NUPIC audit checklist, Revision 21

NUPIC Document No. 11, “Joint Audit &amp; Checklist Implementation Guideline,” Revision 24