



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

April 3, 2023

Mr. Timothy Franchuk  
Quality Assurance Director  
Curtiss-Wright QualTech NP  
4600 East Tech Drive  
Cincinnati, OH 45245

SUBJECT: CURTISS-WRIGHT QUALTECH NP'S NUCLEAR REGULATORY  
COMMISSION VENDOR INSPECTION REPORT NO. 99901414/2023-201

Dear Mr. Franchuk:

On February 13 through February 17, 2023, the U.S. Nuclear Regulatory Commission (NRC) staff conducted an inspection at the Curtiss-Wright QualTech NP's (hereafter referred to as QualTech) facility in Cincinnati, OH. The purpose of this limited-scope routine inspection was to assess QualTech's compliance with provisions of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 21, "Reporting of Defects and Noncompliance," and selected portions of Appendix B, "Quality Assurance Program Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities."

This technically-focused inspection specifically evaluated QualTech's implementation of the quality activities associated with the supply of commercial-grade dedication of electrical and mechanical parts and components, original equipment manufacturing of parts and components, and environmental and seismic qualification services to the U.S. nuclear power plants. This NRC inspection report does not constitute NRC's endorsement of QualTech's overall quality assurance (QA) or 10 CFR Part 21 programs.

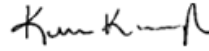
Within the scope of this inspection, no violations or nonconformances were identified.

In accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding," of the NRC's "Rules of Practice," a copy of this letter and its enclosure(s) will be made available electronically for public inspection through NRC's Public Document Room or from the NRC's document system (ADAMS), accessible at <http://www.nrc.gov/reading-rm/adams.html>.

T. Franchuk

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Sincerely,



Signed by Kavanagh, Kerri  
on 04/03/23

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

Docket No.: 99901414

EPID No.: I-2023-201-003

Enclosure:  
Inspection Report No. 99901414/2023-201  
and Attachment

SUBJECT: CURTISSWRIGHT QUALTECH NP'S NUCLEAR REGULATORY COMMISSION  
 VENDOR INSPECTION REPORT NO. 99901414/2023-201, DATE: April 3, 2023

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**U.S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF NUCLEAR REACTOR REGULATION  
DIVISION OF REACTOR OVERSIGHT  
VENDOR INSPECTION REPORT**

Docket No.: 99901414

Report No.: 99901414/2023-201

Vendor: Curtiss-Wright QualTech NP  
4600 East Tech Drive  
Cincinnati, OH 45245

Vendor Contact: Mr. Timothy Franchuk  
Quality Assurance Director  
Email: TFranchuk@curtisswright.com  
Phone: 513-201-2176

Nuclear Industry Activity: Curtiss-Wright QualTech NP's scope of supply includes commercial-grade dedication of electrical and mechanical parts and components, original equipment manufacturing of parts and components, and environmental and seismic qualification services.

Inspection Dates: February 13 - 17, 2023

Inspectors: Frankie Vega      NRR/DRO/IQVB      Team Leader (Training)  
Yamir Diaz-Castillo      NRR/DRO/IQVB      Team Leader  
Greg Galletti      NRR/DRO/IQVB      Remote  
Odunayo Ayegbusi      NRR/DRO/IQVB  
Vince Voltaggio      NRR/DRO/IQVB      Trainee

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

Enclosure

## EXECUTIVE SUMMARY

Curtiss-Wright QualTech NP  
99901414/2023-201

The U.S. Nuclear Regulatory Commission (NRC) staff conducted a limited scope routine vendor inspection at the Curtiss-Wright QualTech NP's (hereafter referred to as QualTech) facility in Cincinnati, OH, to verify that it had implemented an adequate quality assurance (QA) program that complies with 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," and 10 CFR Part 21, "Reporting of Defects and Noncompliance." The NRC inspection team conducted this inspection from February 13 through February 17, 2023. The last NRC inspection of this facility was conducted in June 2013.

This technically focused inspection specifically evaluated QualTech's implementation of the quality activities associated with the supply of commercial-grade dedication (CGD) of electrical and mechanical parts and components, original equipment manufacturing of parts and components, and environmental and seismic qualification services for U.S. nuclear power plants. Specific activities observed by the NRC inspection team included:

- CGD of a General Electric selector switch for the Clinton Nuclear Station
- Seismic qualification testing of several gate valves for the Browns Ferry Nuclear Plant
- Receipt inspection of safety-related inflatable seals

These regulations served as the bases for the NRC inspection:

- Appendix B to 10 CFR Part 50
- 10 CFR Part 21

During the course of this inspection, the NRC inspection team implemented Inspection Procedure (IP) 43002, "Routine Inspections of Nuclear Vendors," dated February 10, 2023, IP 43004, "Inspection of Commercial-Grade Dedication Programs," dated February 10, 2023, and IP 36100, "Inspection of 10 CFR Part 21 and Programs for Reporting Defects and Noncompliance," dated February 10, 2023.

The NRC inspection team concluded that QualTech's QA policies and procedures comply with the applicable requirements of Appendix B to 10 CFR Part 50 and 10 CFR Part 21, and that QualTech personnel are implementing these policies and procedures effectively. The results of this inspection are summarized below.

### Commercial-Grade Dedication

The NRC inspection team reviewed QualTech's policies and implementing procedures that govern the implementation of its commercial-grade dedication (CGD) program to verify compliance with the requirements of Criterion III and Criterion VII, "Control of Purchased Material, Equipment, and Services," of Appendix B to 10 CFR Part 50. The NRC inspection team identified one minor issue associated with QualTech's implementation of its CGD process.

Specifically, QualTech did not verify the validity of a Certified Material Test Reports (CMTR) or lot/batch control (e.g., heat number lot formation indication) on the product to ensure a commercial supplier has established adequate traceability controls and is implementing these controls effectively to support the sample population chosen for performing non-destructive and destructive testing. QualTech initiated condition report (CR) No. 6954 to address this issue.

#### Corrective Action

The NRC inspection team reviewed the corrective actions that QualTech took to address Nonconformances No. 99901414/2013-201-01 and 99901414/2013-201-02, documented in inspection report No. 99901414/2013-201, dated July 29, 2013. This 2013 NRC inspection was performed at QualTech facility in Cincinnati, OH. The NRC inspection team also reviewed the corrective actions that QualTech took to address Nonconformance Nos. 99901441/2014-202-01 and 99901441/2014-202-02, documented in inspection report No. 99901441/2014-202, dated December 5, 2014. This 2014 NRC inspection was performed at the now closed QualTech facility in Huntsville, AL.

The NRC inspection team reviewed the documentation that provided the objective evidence that all the corrective actions were completed and adequately implemented. Based on this review, the NRC inspection team closed Nonconformances 99901414/2013-201-01, 99901414/2013-201-02, 99901441/2014-202-01, and 99901441/2014-202-02.

#### Other Inspection Areas

The NRC inspection team determined that QualTech is implementing its design control, procurement document control, supplier oversight, control of special processes, test control, control of measuring and test equipment, nonconforming material, parts, or components, corrective actions, and internal audits programs in accordance with the applicable regulatory requirements of Appendix B to 10 CFR Part 50. In addition, the NRC inspection team determined that QualTech is implementing its 10 CFR Part 21 program for evaluating deviations and reporting defects that could create a substantial safety hazard in accordance with the applicable regulatory requirements. No findings of significance were identified.

## REPORT DETAILS

### 1. Commercial-Grade Dedication

#### a. Inspection Scope

The U.S. Nuclear Regulatory Commission (NRC) inspection team reviewed Curtiss-Wright QualTech NP's (hereafter referred to as QualTech) policies and implementing procedures that govern the implementation of its commercial-grade dedication (CGD) program to verify compliance with the regulatory requirements of Criterion III, "Design Control," and Criterion VII, "Control of Purchase Equipment, Materials, and Services," 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."

QualTech's CGD process consists of developing CGD plans that include: (1) technical evaluation; (2) identification number; (3) intended environment; (4) safety functions; (5) credible failure mechanisms; (6) critical characteristics and verification methods for acceptance; and (7) supplier/manufacturer identification. The NRC inspection team reviewed a sample of CGD plans and commercial-grade surveys of commercial vendors on QualTech's commercial Approved Vendors List (AVL). The sample of CGD plans included the following items: selector switch, check valve, transfer switch, insulated wire, containment airlock equalizing valves, material, gate valves, disc springs, molded case circuit breaker, and a pump. Within these CGD plans, the NRC inspection team reviewed: (1) purchase orders (POs); (2) technical evaluations; (3) checklists; (4) inspection and test reports; and (5) Certificates of Conformance and Certified Material Test Reports (CMTRs). The NRC inspection team evaluated the criteria for the identification of item functions, credible failure mechanisms and modes, selection of critical characteristics and acceptance criteria, identification of verification methods, and justification of the sampling methodologies, as applicable, to verify the effective implementation of QualTech's CGD process. In addition, the NRC inspection team verified that commercial-grade surveys contained the objective evidence necessary to demonstrate the commercial vendors adequately controls the critical characteristics during the service activities.

The NRC inspection team witnessed the verification of a sample of critical characteristics as part of the CGD of a General Electric selector switch for Clinton Nuclear Station. The NRC inspection team verified that QualTech's test technician was adequately following the CGD plan and documenting the inspection results. In addition, the NRC inspection team confirmed the test technician was using calibrated measuring and testing equipment (M&TE) to take the appropriate measurements. Furthermore, the NRC inspection team reviewed the training records of the test technician and confirmed that he was adequately trained and qualified in accordance with QualTech's policies and procedures.

The NRC inspection team also reviewed QualTech's measures for using the International Laboratory Accreditation Cooperation accreditation process in lieu of performing commercial-grade surveys for the procurement of calibration and testing services as part of the CGD process. QualTech currently implements this process as described in the Nuclear Energy Institute document No. 14-05A, "Guidelines for the Use of Accreditation in Lieu of Commercial Grade Surveys for Procurement of Laboratory

Calibration and Test Services,” Revision 1, dated September 2020, which was recognized for use by the NRC in a safety evaluation dated November 23, 2020 (Agencywide Documents Access Management System Accession (ADAMS) No. ML20322A019).

The NRC inspection team also discussed the CGD program with QualTech’s management and technical staff. The attachment to this inspection report lists the documents reviewed and personnel interviewed by the NRC inspection team.

b. Observations and Findings

During the review of the CGD plans for disc springs and weld test plates, the NRC inspection team noted that material composition was identified as a critical characteristic required to be verified and the acceptance criteria would be the material specification. For the disc springs, the acceptance method for the verification of the material composition was chemical analysis by destructive testing, and for the weld test plates, it was chemical analysis by non-destructive testing (NDT). The destructive testing was performed by a qualified laboratory in QualTech’s commercial AVL and the NDT was performed in-house. The sampling plan’s sample size selected for testing was 1 out of 470 (production traceability exists) for the disc springs, and 3 out of 14 (reduced) for the weld test plates.

The NRC inspection team reviewed the technical basis provided for the sampling plan’s sample size selected for both the disc springs and the weld test plates. For the disc springs, the CGD plan stated that the technical basis was “Lot/batch control,” and “Line Item/Single Product Manufacturer Lot Formations.” For the weld test plates, the CGD plan stated that the technical basis was “heat number lot formation.” QualTech staff also stated that they used physical markings (e.g., heat numbers) and the CMTRs from the commercial suppliers to support lot formation and use it as evidence that these suppliers had established homogeneity and traceability controls (e.g., heat traceability, production traceability, or lot/batch control) to support the selected sampling plan’s sample size. QualTech did not perform a commercial-grade survey to verify the validity of a CMTR and to ensure a commercial supplier has established adequate traceability controls and is implementing these controls effectively. Other means of demonstrating the commercial supplier is adequately implementing traceability controls and the validity of CMTRs may include supplier performance, satisfactory performance history of the item, and the results of additional testing of the item on receipt, etc.

When heat traceability, production traceability, or lot/batch control is used as the technical basis for the selection of the sampling plan’s sample size, it should be supported by documented objective evidence to show that the commercial suppliers have established adequate traceability controls and that these controls are effectively implemented. Further, when using a commercial supplier’s certified CMTR for the verification of a critical characteristic, the validity of these documents should be verified. Reliance on the verification of heat numbers and certification documentation during receipt inspection to show the commercial supplier is adequately implementing traceability controls is insufficient to ensure the quality and suitability of commercially procured products used in safety-related applications. Additional relevant information can be found in Electric Power Research Institute (EPRI) Technical Report 302002982, “Plant Engineering: Guideline for the Acceptance of Commercial-Grade Items in Nuclear Safety-Related Applications” Revision 1, dated September 2014 (ADAMS Accession No.



ML18199A161) which was endorsed by the NRC in Regulatory Guide (RG) 1.164, "Dedication of Commercial-Grade Items for use in Nuclear Power Plants" Revision 0, dated June 2017 (ADAMS Accession No. ML17041A206), and EPRI TR-017218-R1, "Guideline for Sampling in the Commercial-Grade Item Acceptance Process."

The NRC inspection team identified this issue as minor because QualTech considers other factors for sampling of critical characteristics such as the overall complexity (or simplicity of the item), safety significance of the critical characteristic and the quantity of other critical characteristics being verified. Also, QualTech performs additional tests and inspections as part of the CGD process, and the results of these tests and inspections demonstrate that the critical characteristics were adequately controlled. QualTech initiated CR No. C23-6954 to address this issue.

c. Conclusion

The NRC inspection team concluded that QualTech is implementing its commercial-grade dedication program in accordance with the regulatory requirements of Criterion III and Criterion VII of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that QualTech is implementing its policies and procedures associated with the commercial-grade dedication program. No findings of significance were identified.

2. Design Control

a. Inspection Scope

The NRC inspection team reviewed QualTech's policies and implementing procedures that govern the implementation of its design control program to verify compliance with the regulatory requirements of Criterion III of Appendix B to 10 CFR Part 50.

The NRC inspection team reviewed a sample of design reports, design specifications, engineering drawings, POs, engineering change notices (ECNs), and CRs. The NRC inspection team reviewed design packages for the Main Control Room (MCR) evaporator and condenser pipes for the Watts Bar Nuclear Plant. The NRC inspection team also reviewed qualification reports, calculations, and analyses in support of the conclusions for a series of check valves for the Browns Ferry Nuclear Plant. The NRC inspection team confirmed that the design and technical requirements were adequately translated into the applicable QualTech's drawings, instructions, procedures, and specifications for the items specified above.

The NRC inspection team reviewed QualTech's processes for performing design reviews and controlling and approving design changes. QualTech uses design reviews, alternative calculations, or qualification testing to show that design changes are commensurate with the original component qualification during design verification. The NRC inspection team evaluated a sample of ECNs associated with dimensional adjustments to the mounting configuration of a Shutdown Board Room Chiller and material changes for a MCR evaporator and condenser pipes. These design changes were verified through design review and qualification testing.

The NRC inspection team verified that QualTech's design control process was consistent with the applicable regulatory requirements, and that QualTech had correctly translated the design basis into the applicable specifications, drawings, procedures, and instructions. The NRC inspection team verified that QualTech's design control process: (1) adequately translated technical and quality requirements into procedures and instructions, (2) applied materials conformed to the material specifications, (3) design activities were effectively controlled by documented instructions and procedures, and (4) design changes were accomplished in accordance with the approved procedures.

The NRC inspection team also discussed the design control program with QualTech's management and technical staff. The attachment to this inspection report lists the documents reviewed and personnel interviewed by the NRC inspection team.

b. Observations and Findings

No findings of significance were identified.

c. Conclusion

With the exception of the minor issue identified above in Section 1, the NRC inspection team concluded that QualTech is implementing its design control program in accordance with the regulatory requirements of Criterion III of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that QualTech is implementing its policies and procedures associated with the design control program. No findings of significance were identified.

3. Procurement Document Control and Supplier Oversight

a. Inspection Scope

The NRC inspection team reviewed QualTech's policies and implementing procedures that govern the implementation of its procurement document control and supplier oversight programs to verify compliance with the requirements of Criterion IV, "Procurement Document Control," and Criterion VII of Appendix B to 10 CFR Part 50.

The NRC inspection team reviewed QualTech's safety-related AVL, a sample of POs, supplier audits, and receipt inspection records. For the sample of POs reviewed, the NRC inspection team verified that the POs included, as appropriate: the scope of work, right of access to the suppliers' facilities, conditions and restrictions imposed to sub-suppliers, and extension of contractual requirements to sub-suppliers. The NRC inspection team also confirmed that the POs adequately invoked the applicable technical, regulatory, and quality requirements. In addition, the NRC inspection team verified that for the sample of receipt inspection records reviewed (e.g., receipt inspection reports, Certificates of Compliance, and Certificates of Calibration), these records: (1) were reviewed and approved by QualTech's qualified staff for compliance with the requirements of the POs and (2) the records contained the applicable technical and regulatory information.

The NRC inspection team performed a walkdown of the receipt inspection area, witnessed the receipt inspection of safety-related inflatable seals, discussed the receipt inspection process with a QualTech quality control (QC) inspector. The NRC inspection

team confirmed that the receipt inspection was performed in accordance with the applicable quality procedures. In addition, the NRC inspection team reviewed the training and qualification records of the QC inspector and confirmed that the inspector had completed all the required training and had maintained the applicable qualification and certification in accordance with QualTech's policies and procedures.

The NRC inspection team selected a sample of suppliers from the safety-related AVL to review the process for conducting and documenting audits. For the sample of supplier audits reviewed, the NRC inspection team confirmed that: (1) the audit reports included an audit plan; (2) the audits were performed according to established frequency; (3) the audit reports included adequate documented objective evidence of compliance with the applicable requirements; and (4) the audit documentation was reviewed by QualTech's responsible management. In addition, the NRC inspection team confirmed that annual supplier evaluations were performed in accordance with QualTech's policies and procedures.

The NRC inspection team also verified that the supplier audits and annual evaluations were performed by qualified auditors and audit findings were documented and resolved in the QualTech and the suppliers' corrective action programs. Further, the NRC inspection team reviewed a sample of training and qualification records of lead auditors and confirmed that auditing personnel had completed all the required training and had maintained the applicable qualification and certification in accordance with QualTech's policies and procedures.

The NRC inspection team also discussed the procurement document control and supplier oversight programs with QualTech's management and technical staff. The attachment to this inspection report lists the documents reviewed and personnel interviewed by the NRC inspection team.

b. Observations and Findings

No findings of significance were identified.

c. Conclusion

The NRC inspection team concluded that QualTech is implementing its procurement document control and supplier oversight programs in accordance with the regulatory requirements of Criterion IV and Criterion VII of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that QualTech is implementing its policies and procedures associated with the procurement document control and supplier oversight programs. No findings of significance were identified.

4. Control of Special Processes

a. Inspection Scope

The NRC inspection team reviewed QualTech's policies and implementing procedures that govern the implementation of its control of special processes program to verify compliance with the regulatory requirements of Criterion IX, "Control of Special Processes," of Appendix B to 10 CFR Part 50, and with the requirements of the

American Society for Nondestructive Testing (ASNT) SNT-TC-1A, "Personnel Qualification and Certification in Nondestructive Testing."

There were no safety-related welding or NDT activities being performed during the week of the inspection. Welding activities at QualTech are limited to Gas Tungsten Arc Welding and Flux-Cored Arc Welding and only minor repair work. As such, the NRC inspection team reviewed a sample of completed Welding Procedure Specifications (WPS) and Procedure Qualification Records (PQR). The NRC inspection team verified that the applicable welding data and other required information, as applicable, was adequately recorded in the WPS and PQR (e.g., procedures used, type of weld filler material, etc.). The NRC inspection team also reviewed QualTech's process for controlling weld filler metal. The NRC inspection team performed a walk-down of the weld storage area and confirmed that weld filler materials were adequately controlled to prevent degradation, inadvertent use, or loss of traceability in accordance with QualTech's procedures. In addition, the NRC inspection team reviewed the associated Welder Performance Qualification Records and confirmed that the welders have completed the required training and had maintained their qualifications in accordance with the applicable QualTech's policies and procedures.

NDT activities at QualTech are limited to Visual Testing (VT), Magnetic Particle Testing (MT), and Liquid Penetrant Testing (PT). The NRC inspection team reviewed a sample of procedures and completed test records. The NRC inspection team confirmed the NDT reports contained the required information in accordance with QualTech's policies and procedures. In addition, the NRC inspection team reviewed the qualification records for the Level II inspector who performed the VT, MT, and PT and confirmed he was qualified in accordance with the requirements of ASNT SNT-TC-1A.

The NRC inspection team also discussed the control of special processes program with QualTech's management and technical staff. The attachment to this inspection report lists the documents reviewed and personnel interviewed by the NRC inspection team.

b. Observations and Findings

No findings of significance were identified.

c. Conclusion

The NRC inspection team concluded that QualTech is implementing its control of special processes program in accordance with the regulatory requirements of Criterion IX of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that QualTech is implementing its policies and procedures associated with the control of special processes program. No findings of significance were identified.

5. Test Control

a. Inspection Scope

The NRC inspection team reviewed QualTech's policies and implementing procedures that govern the implementation of its test control program to verify compliance with the requirements of Criterion XI, "Test Control," of Appendix B to 10 CFR Part 50.

The NRC inspection team witnessed the seismic qualification testing of several gate valves during the week of the inspection. The NRC inspection team reviewed the test documentation associated with this qualification testing which included the following documents: (1) "Generic Seismic Qualification Test Procedure," Revision 10, dated January 13, 2016; (2) "Seismic Qualification Report and Testing Standardization (SQRSTS) Generic Test Specification," Revision 5, dated May 3, 2012, and (3) Test Procedure No. S2301.0 "Seismic qualification Test Procedure for Multiple Items," Revision 1, dated January 27, 2023. The NRC inspection team witnessed QualTech's process for setting up and performing the seismic testing and discussed the procedures with the seismic test technician. The NRC inspection team verified that the seismic test documentation included the acceptance range and documented the equipment used to document the results. The NRC inspection team confirmed that the test was performed using properly calibrated M&TE. The NRC inspection team also reviewed the test records for a completed seismic qualification for solenoid valves and relays and confirmed that all the test requirements had been met.

The NRC inspection team verified that QualTech's test procedures adequately included the applicable technical, quality, and regulatory requirements. The NRC inspection team also reviewed the training and qualification records of the seismic test technician performing the test and confirmed that testing personnel had completed all the required training and had maintained the applicable qualification and certification in accordance with QualTech's policies and procedures. The NRC inspection team also confirmed that the following testing elements were satisfied, verified, and recorded, as appropriate: (1) test parameters and initial conditions, (2) test acceptance criteria, (3) test prerequisites, (4) test instrument range, accuracy, and uncertainty appropriate for the test; (5) current calibration, and (6) any deviations documented and evaluated.

The NRC inspection team reviewed a sample of CRs and failure analysis reports associated with equipment qualification testing activities and noted that the test anomalies were adequately described and corrective actions taken to resolve the conditions that were identified. In all cases, where required, customer acceptance was documented and corrective actions were implemented. The NRC inspection team noted QualTech's process for using of photographs and schematic drawings to clearly identify nonconforming conditions upon receipt or during testing of the equipment was adequately implemented.

The NRC inspection team discussed the test control program with QualTech's management and technical staff. The attachment to this inspection report lists the documents reviewed and personnel interviewed by the NRC inspection team.

b. Observations and Findings

No findings of significance were identified.

c. Conclusion

The NRC inspection team concluded that QualTech is implementing its test control program in accordance with the regulatory requirements of Criterion XI of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that QualTech is implementing its policies and

procedures associated with the test control program. No findings of significance were identified.

## 6. Control of Measuring and Test Equipment

### a. Inspection Scope

The NRC inspection team reviewed QualTech's policies and implementing procedures that govern the implementation of its M&TE program to verify compliance with the requirements of Criterion XII, "Control of Measuring and Test Equipment," of Appendix B to 10 CFR Part 50.

QualTech's M&TE is calibrated by external laboratories in the commercial AVL and internally by QualTech staff. All of the M&TE is assigned an asset number traceable to the Master Equipment List (MEL). The MEL is where QualTech maintains and tracks all of their M&TE. For a sample of M&TE, the NRC inspection team verified that the M&TE had the appropriate calibration stickers and current calibration dates, including the calibration due date. The NRC inspection team also verified that the M&TE had been calibrated, adjusted, and maintained at prescribed intervals prior to use. In addition, the calibration records reviewed by the NRC inspection team indicated the as-found or as-left conditions, accuracy required, calibration results, calibration dates, and the due date for recalibration. Furthermore, the NRC inspection team also verified that the selected M&TE was calibrated using procedures traceable to known industry standards. The NRC inspection team confirmed that when M&TE equipment is found to be out of calibration, QualTech generates a CR to identify items that have been accepted using this equipment since the last valid calibration date and to perform an extent of condition review. The NRC inspection team performed a walk-down of QualTech's manufacturing floor to observe that M&TE were labeled, handled, and stored in a manner that indicated the calibration status of the instrument and ensured its traceability to calibration test data.

The NRC inspection team also discussed the M&TE program with QualTech's management and technical staff. The attachment to this inspection report lists the documents reviewed and personnel interviewed by the NRC inspection team.

### b. Observations and Findings

No findings of significance were identified.

### c. Conclusion

The NRC inspection team concluded that QualTech is implementing its M&TE program in accordance with the regulatory requirements of Criterion XII of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that QualTech is implementing its policies and procedures associated with the M&TE program. No findings of significance were identified.

## 7. Nonconforming Materials, Parts, or Components and Corrective Action

### a. Inspection Scope

The NRC inspection team reviewed QualTech's policies and implementing procedures that govern the implementation of its nonconforming materials, parts, or components and corrective action programs to verify compliance with the requirements of Criterion XV, "Nonconforming Materials, Parts, or Components," and Criterion XVI, "Corrective Action," of Appendix B to 10 CFR Part 50.

The NRC inspection team verified that QualTech's processes and procedures provide for the identification, documentation, segregation, evaluation, and disposition of nonconforming items. These processes also apply the principles of rework/repair, scrap, return to vendor, or "use as-is."

The NRC inspection team observed QualTech's assembly floor operations and verified that nonconforming materials, parts, or components were properly identified, marked, and segregated, when practical, to ensure that they were not reintroduced into the production processes. QualTech uses CRs to address both nonconformances and corrective actions. The NRC inspection team reviewed a sample of CRs that documented nonconforming items associated with the production of safety-related parts and confirmed that QualTech dispositioned the nonconforming materials: (1) in accordance with the applicable procedures; (2) documented an appropriate technical justification for various dispositions; and (3) took adequate corrective action regarding the nonconforming items to prevent recurrence, as appropriate.

The NRC inspection team also reviewed a sample of CRs to verify: (1) adequate documentation and description of conditions adverse to quality; (2) an appropriate analysis of the cause of these conditions and the corrective actions taken to prevent recurrence; (3) direction for review and approval by the responsible authority; (4) a description of the current status of the correction actions; and (5) the actions taken to verify timely and effective implementation of the corrective actions. In addition, the NRC inspection team confirmed that the nonconformance and corrective action processes provide a link to QualTech's 10 CFR Part 21, "Reporting of Defects and Noncompliance," program.

The NRC inspection team also reviewed QualTech's corrective actions in response to the inspection findings identified in the NRC inspection report (IR) No. 99901414/2013-201, dated July 29, 2013 (ADAMS Accession No. ML13200A373) and IR No. 99901441/2014-202, dated December 5, 2014 (ADAMS Accession No. ML14323A331). The 2013 NRC inspection was performed at the QualTech facility in Cincinnati, OH and the 2014 NRC inspection was performed at the now closed QualTech facility in Huntsville, AL.

The NRC inspection team also discussed the nonconforming materials, parts, or components and corrective action programs with QualTech's management and technical staff. The attachment to this inspection report lists the documents reviewed and personnel interviewed by the NRC inspection team.

b. Observations and Findings

b.1 Corrective Action Associated with Nonconformance 99901414/2013-201-01

Following the June 2013 inspection at QualTech, the NRC issued Nonconformance 99901414/2013-201-01 for QualTech's failure to perform a review for suitability of application of materials, parts, equipment, and processes that are essential to the safety-related function of the structures, systems, and components as part of the CGD of a BAL seal rotary flange seal part No. 0000045942. Specifically, QualTech did not perform a nitric acid spot test to assure the rotary flange material was 300 stainless steel series and document the results in the inspection data sheet as required by the CGD plan.

In its response dated September 20, 2013 (ADAMS Accession No. ML13282A312), QualTech stated that it initiated CR No. C13-264 to address this issue. In CR No. C13-264, QualTech stated that it selected one item from the same lot of material that was identified in Nonconformance 99901414/2013-201-01 and tested this item in accordance with the approved CGD plan. QualTech also stated the item was found to be acceptable in accordance with the acceptance criteria and therefore, there was no impact on the item identified in Nonconformance 99901414/2013-201-01. In addition, QualTech reviewed historical files for the extent of condition and no other occurrence of this nature were identified.

The NRC inspection team reviewed the documentation that provided the objective evidence for the completion of the corrective actions, including the review of CR No. C13-264. The NRC inspection team confirmed that QualTech successfully tested one item from the same lot of material for the BAL seal rotary flange seal part No. 0000045942 to ensure that there was no impact on the item identified in Nonconformance 99901414/2013-201-01. In addition, the NRC inspection team verified that QualTech's preventive actions to perform an extent of condition for hardware impact did not identify any other concerns and QualTech informed all personnel involved in the testing and review of the dedication process associated with Nonconformance 99901414/2013-201-01. Lastly, the NRC inspection team confirmed that the corrective actions were performed in a timely manner.

The NRC inspection team determined that QualTech's corrective actions were adequately implemented to address Nonconformance 99901414/2013-201-01. No findings of significance were identified.

b.2 Corrective Action Associated with Nonconformance 99901414/2013-201-02

Following the June 2013 inspection at QualTech, the NRC issued 99901414/2013-201-02 for QualTech's failure to properly translate contract requirements into procurement specifications and test procedures associated with the testing of certain safety-related components. Specifically, QualTech's test procedures that were included with QualTech's POs to Green Mountain Electromagnetics (GME) did not explicitly state the proper International Electrotechnical Commission (IEC) standards and revisions required to be used for electromagnetic compatibility.

In its response dated September 20, 2013, QualTech stated that it initiated CR No. C13-265 to address this issue. In CR No. C13-265, QualTech stated that it contracted GME to perform a review of the revision and year of the IEC and CISPR standards specified



by the EPRI Topical Report (TR)-102323 "Guidelines for Electromagnetic Interference Testing of Power Plant Equipment" and the NRC's RG 1.180, "Guidelines for Evaluating Electromagnetic and Radio-Frequency Interference in Safety-Related Instrumentation and Control Systems," to the current year available, and also to review revision and year of standard MIL-STD 461E, "Requirements for the Control of Electromagnetic Interference Characteristics of Subsystems and Equipment," specified by EPRI TR-102323 and the NRC's RG 1.180. Both reviews concluded that the use of the latest revision and year of the IEC CISPR and MIL-STD 461 standard were in compliance with the revision and year specified in EPRI TR-102323 and the NRC's RG 1.180. The review also concluded that the technical changes in the documents improved the methodology and expanded the applicability of the standards. In addition, emission and immunity levels are unchanged, therefore, there was no impact on any previous testing and an extent of condition beyond this review is not required.

The NRC inspection team reviewed the documentation that provided the objective evidence for the completion of the corrective actions, including the review of CR No. C13-265. The NRC inspection team confirmed that QualTech had a service supplier perform a comparison between the two revisions of the IEC and CISPR standards and found that the requirements in both revisions remained unchanged. In addition, the NRC inspection team verified that QualTech's preventive actions to make it a practice to specify the year and revision of the applicable standards in procurement documents were being implemented adequately. Lastly, the NRC inspection team confirmed that the corrective actions were performed in a timely manner.

The NRC inspection team determined that QualTech's corrective actions were adequately implemented to address Nonconformance 99901414/2013-201-02. No findings of significance were identified.

### b.3 Corrective Action Associated with Nonconformance 99901441/2014-202-01

Following the October 2014 inspection at QualTech, the NRC issued Nonconformance 99901441/2014-202-01 for QualTech's failure to perform a review for suitability of application of materials, parts, equipment, and processes that are essential to the safety-related function of the structures, systems, and components. Specifically, QualTech failed to: (1) adequately identify and review critical characteristics for the CGD of a pinch valve liner in CGD report EGSTR-HC-1535-01, "Test Report for 3-inch Delta Pinch Valve Rubber Liner," dated April 12, 2013; (2) ensure that material requirements listed in PO No. 4700664988 for two safety relief valves were met; and (3) ensure that item specifications required in customer POs were met.

In its response dated January 5, 2015 (ADAMS Accession No. ML15007A432), QualTech stated that it corrected the conditions identified in the Nonconformance 99901441/2014-202-01 by: (1) defining additional critical characteristics, testing two pinch valve liners, and comparing the results to the qualified specimen; (2) revising the Certificate of Conformance to clarify that no additional material testing was performed beyond what the customer requested in the original PO; and (3) confirming that the supplied item had an incorrectly identified manufacturer. In addition, for all three examples, QualTech stated that it took preventive actions to train personnel and planned to perform an extent of condition.

The NRC inspection team reviewed the documentation that provided the objective evidence for the completion of the corrective actions. At the time of this inspection QualTech used Corrective Action Reports (CARs) to address conditions adverse to quality such as inspection findings. QualTech initiated CAR-2014-013, CAR-2015-012, and CAR-2014-009 for each issue identified in Nonconformance 99901441/2014-202-01. The NRC staff reviewed these CARs and confirmed that QualTech: (1) defined additional critical characteristics and tested two pinch valve liners and compared them to the qualified specimen with no issues; (2) revised the Certificate of Conformance to clarify that no additional material testing was performed beyond what the customer requested in the original PO; and (3) confirmed that the supplied item had an incorrectly identified manufacturer but the correct item was supplied. In addition, QualTech completed training of its personnel and performed an extent of condition with no significant impact identified. Lastly, the NRC inspection team confirmed that the corrective actions were performed in a timely manner.

The NRC inspection team determined that QualTech's corrective actions were adequately implemented to address Nonconformance 99901441/2014-202-01. No findings of significance were identified.

#### b.4 Corrective Action Associated with Nonconformance 99901441/2014-202-02

Following the October 2014 inspection at QualTech, the NRC issued Nonconformance 99901441/2014-202-02 for QualTech's failure to satisfy test requirements and document evaluations of the test deviations. Specifically, QualTech failed to: (1) document and evaluate a change in test configuration that affixed a power supply, VGA extender, and USB extender to the shaker table rather than the rear of the mounting plate as required for PO No. 19-25392; (2) document and evaluate pressure drops during a design basis event/high energy line break test that went below the test requirements specified in EGS-TR-HC52-1; and (3) document and evaluate test requirements for PO No. 00151667 for pinch valves.

In its response dated January 5, 2015, QualTech stated that it corrected the conditions identified in the Nonconformance 99901441/2014-202-02 by: (1) confirming with the customer that the testing was valid; (2) confirming that the test results were found to be acceptable as documented; and (3) confirming with the customer that the lower seismic shell test pressure was acceptable and the test equipment and results were acceptable and valid. In addition, for all three examples, QualTech stated that it took preventive actions to train personnel and planned to perform an extent of condition.

The NRC inspection team reviewed the documentation that provided the objective evidence for the completion of the corrective actions. QualTech initiated CAR-2015-010, CAR-NOA-2014-200, and CAR-2015-011 for each condition identified in Nonconformance 99901441/2014-202-02. The NRC staff reviewed these CARs and confirmed that QualTech (1) confirmed with the customer that the testing was valid; (2) confirmed that the test results were found to be acceptable as documented; and (3) confirmed with the customer that the lower seismic shell test pressure was acceptable and the test equipment and results were acceptable and valid. In addition, QualTech completed training of its personnel and performed an extent of condition with no significant impact identified. Lastly, the NRC inspection team confirmed that the corrective actions were performed in a timely manner.

The NRC inspection team determined that QualTech's corrective actions were adequately implemented to address Nonconformance 99901441/2014-202-02. No findings of significance were identified.

c. Conclusion

The NRC inspection team concluded that QualTech is implementing its nonconforming materials, parts, or components and corrective action programs in accordance with the regulatory requirements of Criterion XV and Criterion XVI of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that QualTech is implementing its policies and procedures associated with the control of nonconforming materials, parts, or components and corrective action programs. No findings of significance were identified.

8. Internal Audits

a. Inspection Scope

The NRC inspection team reviewed QualTech's policies and implementing procedures that govern the implementation of its internal audits program to verify compliance with the requirements of Criterion XVIII, "Audits," of Appendix B to 10 CFR Part 50.

For a sample of internal audits reviewed, the NRC inspection team verified the audit reports included an audit plan, any findings identified, adequate documented objective evidence of compliance with the applicable requirements, and a review by QualTech's responsible management. In addition, the NRC inspection team also verified that the audits were performed by a qualified auditor and that these audits were performed by personnel not having direct responsibilities in the areas being audited.

The NRC inspection team also discussed the internal audits program with QualTech's management and technical staff. The attachment to this inspection report lists the documents reviewed and personnel interviewed by the NRC inspection team.

b. Observations and Findings

No findings of significance were identified.

c. Conclusion

The NRC inspection team concluded that QualTech is implementing its internal audit program in accordance with the regulatory requirements of Criterion XVIII of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed and activities observed, the NRC inspection team also determined that QualTech is implementing its policies and procedures associated with internal audit program. No findings of significance were identified.

## 9. 10 CFR Part 21 Program

### a. Inspection Scope

The NRC inspection team reviewed QualTech's policies and implementing procedures that govern the implementation of its 10 CFR Part 21 program to verify compliance with the regulatory requirements.

The NRC inspection team evaluated the 10 CFR Part 21 postings and a sample of QualTech's POs for compliance with the requirements of 10 CFR 21.21, "Notification of Failure to Comply or Existence of a Defect and its Evaluation," and 10 CFR 21.31, "Procurement Documents." The NRC inspection team verified that QualTech's nonconformance and corrective action Quality Assurance Procedure (QAP) No. 16.03, "Corrective Action Program," Section 6.3, "Part 21 Evaluation and Assignment of RM," provides a link to the 10 CFR Part 21 program for applicability and evaluation.

The NRC inspection team reviewed a sample of 10 CFR Part 21 evaluations performed within the past three years and confirmed that QualTech had effectively implemented the requirements for evaluating deviations and failures to comply. The NRC inspection team verified that QualTech's procedure QAP No. 15.02, "10 CFR Part 21 Evaluation and Reportability" Revision 5, dated February 6, 2019, directs notifications be performed in accordance with the requirements of 10 CFR 21.21, as applicable. QualTech provided sufficient objective evidence to support their engineering evaluations regarding potential 10 CFR Part 21 reportability over the period of the past three years. The NRC inspection team verified that the notifications were performed in accordance with the requirements of 10 CFR 21.21, as applicable.

The NRC inspection team also discussed the 10 CFR Part 21 program with QualTech's management and technical staff. The attachment to this inspection report lists the documents reviewed and personnel interviewed by the NRC inspection team.

### b. Observations and Findings

No findings of significance were identified.

### c. Conclusion

The NRC inspection team concluded that QualTech is implementing its 10 CFR Part 21 program in accordance with the regulatory requirements of 10 CFR Part 21. Based on the limited sample of documents reviewed, the NRC inspection team also determined that QualTech is implementing its policies and procedures associated with the 10 CFR Part 21 program. No findings of significance were identified.

## 9. Entrance and Exit Meetings

On February 13, 2023, the NRC inspection team discussed the scope of the inspection with Jason VonNida, Business Segment Director, and other members of QualTech's management and technical staff. On February 17, 2023, the NRC inspection team presented the inspection results and observations during an exit meeting with Mr. VonNida and other members of QualTech's management and technical staff. The attachment to this

report lists the attendees of the entrance and exit meetings, as well as those individuals whom the NRC inspection team interviewed.

## ATTACHMENT

### 1. ENTRANCE/EXIT MEETING ATTENDEES

<b>Name</b>	<b>Title</b>	<b>Affiliation</b>	<b>Entrance</b>	<b>Exit</b>	<b>Interviewed</b>
Tim Franchuk	Quality Assurance (QA) Director	Curtiss-Wright (CW) QualTech	X	X	X
Jason VonNida	Business Segment Director	CW QualTech	X	X	X
Mike Bell	Manager, Commercial-Grade Dedication	CW QualTech	X	X	X
Damien Sebald	Manager, Equipment Qualification and Engineering	CW QualTech	X	X	X
Kevin Crowder	Manager, Test Laboratory	CW QualTech			
Robert Whittenberger	Director, Spare Parts	CW QualTech	X	X	X
Kevin Green	Senior QA Engineer	CW QualTech	X	X	X
Mark D. Clung	Lead Auditor & QA Engineer	CW QualTech	X	X	X
John R. Hendricks	Chief Engineer	CW QualTech	X	X	
Mike Wooldridge	Product Manager	CW QualTech			X
Margie Hover	Document Control Supervisor	CW QualTech			X
Darren Myers	Senior Test Technician	CW QualTech			X
Jack Helvey	Non-Destructive Examiner, Level II	CW QualTech			X

<b>Name</b>	<b>Title</b>	<b>Affiliation</b>	<b>Entrance</b>	<b>Exit</b>	<b>Interviewed</b>
Jennifer Harrison	Measuring & Test Equipment Technician	CW QualTech			X
Yamir Diaz-Castillo	Inspection Team Leader	Nuclear Regulatory Commission (NRC)	X	X	
Frankie Vega	Inspection Team Leader (In Training)	NRC	X	X	
Greg Galletti*	Inspector	NRC		X	
Odunayo Ayegbusi	Inspector	NRC	X	X	
Vince Voltaggio	Inspector	NRC	X	X	
Kerri Kavanagh	Branch Chief, Quality Assurance and Vendor Inspection Branch	NRC		X	
Russell Felts	Division Director, Division of Reactor Oversight	NRC		X	

\*Participated remotely.

## 2. INSPECTION PROCEDURES USED

Inspection Procedure (IP) 36100, "Inspection of 10 CFR Part 21 and Programs for Reporting Defects and Noncompliance," dated February 10, 2023.

IP 43002, "Routine Inspections of Nuclear Vendors," dated February 10, 2023.

IP 43004, "Inspection of Commercial-Grade Dedication Programs," dated February 10, 2023.

## 3. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

<b>Item Number</b>	<b>Status</b>	<b>Type</b>	<b>Description</b>
99901414/2013-201-01	CLOSED	NON	Criterion III

Item Number	Status	Type	Description
99901414/2013-201-02	CLOSED	NON	Criterion III
99901441/2014-202-01	CLOSED	NON	Criterion III
99901441/2014-202-02	CLOSED	NON	Criterion XI

#### 4. DOCUMENTS REVIEWED

##### Policies and Procedures

- Curtiss Wright Nuclear Division Corporate Quality Assurance Manual, Revision 5, dated August 1, 2020
- Quality Assurance Procedure (QAP) No. 1.02, "Customer Returns," Revision 6, dated December 10, 2019
- QAP 3.01, "Auditor Training and Qualification," Revision 4, dated January 31, 2019
- QAP 3.02, "Indoctrination and Training," Revision 2, dated August 31, 2012
- QAP 3.03, "Qualification and Certification of Inspection and Test Personnel," Revision 3, dated August 23, 2021
- QAP 3.04, "ASNT-TC-1A Written Practice," Revision 4, dated September 6, 2018
- QAP 4.07, "Work Control Between Curtis-Wright Facilities," Revision 6, dated August 26, 2019
- QAP 5.02, "Preparation and Placement of a Purchase Order," Revision 9, dated October 24, 2018
- QAP 6.03, "Control of Manufacturing Travelers," Revision 10, dated February 18, 2022
- QAP 7.01, "Document Control," Revision 6, dated February 7, 2022
- QAP 7.01-004, QualTech QAPs Index, Revision 0
- QAP 8.01, "Receiving Inspection," Revision 5, dated February 25, 2019
- QAP 8.02, "Supplier Surveillance and Source Inspection," dated January 30, 2020
- QAP 8.03, "Counterfeit, Fraudulent and Suspect Items," Revision 3, dated January 31, 2019
- QAP 8.06, "Dedication and Supply of Commercial Grade Items Having Safety Related Applications," Revision 9, dated July 13, 2022



- QAP 9.02, "Identification of Qualification Samples and Dedicated Items," Revision 5, dated February 6, 2020
- QAP 10.01, "Welding Controls," Revision 7, dated January 21, 2022
- QAP 11.01, "Qualification Testing," Revision 4, dated May 22, 2019
- QAP 12.01, "Calibration System Requirements," Revision 12, dated February 7, 2023
- QAP 12.005, "Calibration Procedure for Calipers," Revision 0, dated April 14, 2016
- QAP 14.01, "Sampling Procedure for Inspection by Attributes," Revision 4, dated January 13, 2020
- QAP 14.02, "In-Process and Final Inspection of Nuclear Parts and Components," Revision 3, dated March 14, 2019
- QAP 15.02, "10 CFR Part 21 Evaluation and Reportability," Revision 5, dated February 6, 2019
- QAP 15.03, "Management Review and Trend Analysis," Revision 4, dated April 4, 2022
- QAP 16.02, "Root Cause Analysis," Revision 0, dated March 29, 2012
- QAP 16.03, "Corrective Action Program," Revision 4, dated June 10, 2015
- QAP 16.04, "Corrective Action Program Verification/Validation," Revision 0, dated December 6, 2012
- QAP 18.01, "Audits and Commercial Grade Surveys," Revision 5, dated September 7, 2022
- QAP 18.02, "Evaluation of Nuclear Industry Assessment Corporation (NIAC) Assessment Reports," Revision 5, dated January 31, 2019
- MT-1.0, "Procedure for Magnetic Particle Examination," Revision 2, dated October 8, 2013
- PT-1.0, "Procedure for Liquid Penetrant Examination: Nuclear Applications," Revision 7, dated September 6, 2018
- VT-1.2, "Procedure for Visual Examination of Welds," Revision 0, dated January 9, 1998

#### Design Control Records

- SCTS-01, "SQURTS Generic Test Specification," Revision 5, dated September 17, 2022
- SQTS-01-GSQTP, "Generic Seismic Qualification Technical Procedure," Revision 10, dated January 13, 2016

- TP S2301.0, "Seismic Qualification Test Procedure for Multiple Items," Revision 1, dated January 27, 2023
- Form 162-03-98, "Test Log for Seismic Qualification Program," Revision 7, dated February 15, 2022
- S1128.5, "Seismic Test Report for Various ASCO Solenoid Valves and Coto Technology Relay," Revision 0, dated November 14, 2011
- S2209.0, "Seismic Test Report for Amcrest Security Camera," Revision 0, dated June 8, 2022
- CJ18759.1-1, Hydrostatic Test Report, dated September 8, 2022
- CJ18759.1-2, Certified Material Test Report, dated October 4, 2022
- Engineering Change Notice (ECN) No. 22-04, dated April 26, 2022
- ECN No. 22-53, dated October 20, 2022
- ECN No. 22-61, dated December 2, 2022
- ECN No. 22-35, dated July 7, 2022
- ECN No. 21-01, dated January 8, 2022
- ECN No. 22-63, dated December 7, 2022
- ECN No. 22-65, dated December 8, 2022
- Equipment Qualification Verification Analysis, Motor (order No. CP00017482), dated June 24, 2021
- Failure Analysis Report No. CJ17856.2, "EPL Report on the Nova Electric Inverter," dated October 6, 2021
- Failure Analysis Report No. CJ18111.FE, "Failure Evaluation for RCS/Dresser Actuator SURE-24-10-4," Revision 2
- Report No. 202202123, "Metallurgical Evaluation of a Failed Braze Joint," dated September 30, 2022

#### Commercial-Grade Dedication Records

- Accredited Testing Vendor Evaluation, February 4, 2022
- Accredited Testing Vendor Evaluation, dated May 8, 2022
- Dedication Plan No. CJ17034-1, "Raymond Control Systems Actuator P/N: SURE-24-10-4," Revision 3, dated June 20, 2022

- Dedication Plan No. CJ14219-1, "Dedication Plan for A General Electric Selector Switch P/N CR104PSG86B92," Revision 1, dated November 14, 2017 for Clinton Nuclear Station
- Dedication Plan No. CJ18252-1, "Dedication Plan for CWND (Trentec) Check Valve P/N: 32873-235," Revision 0, dated January 31, 2022 and the associated Dedication File No. CJ18252.1
- Dedication Plan No. CJ16784-1, "Dedication Plan for ASCO Transfer Switch P/N: D00432020100K1XC, 18B, 18G," Revision 1, dated October 2, 2020 and the associated Dedication File No. CJ16784.1
- Dedication Plan No. CJ14719-7, "Dedication Plan for Insulated Wire, Southwire P/N: 112995 and 113035," Revision 1, dated February 9, 2021
- Dedication Plan No. CGI-013, "Dedication Plan for Parker/Schrader Bellows Valvair Manual Spool Valves Clevis Operated/Spring Return," Revision 4, dated November 17, 2009
- Dedication Plan No. CG-004, "Dedication Plan for Commercial Grade Material to be Used in Nuclear Safety Related Applications," Revision 6, dated August 18, 2021
- Dedication Plan No. CJ19193-1, "Dedication Plan for Velan Gate Valve, P/N: B14-0064C02TY (6"-B0064C02TY), Revision 0, dated February 3, 2023
- Dedication Plan No. CJ19193-3, "Dedication Plan for Velan Gate Valve, P/N B08-0064C02TY (2"-B0064C02TY), Revision 0, dated February 6, 2023
- Dedication Plan No. CJ15056-1, "Dedication Plan for Maryland Precision Spring Disc Spring P/N: AI115139, Revision 1, dated June 28, 2022, and the associated Dedication File No. CJ17249.1
- Dedication Plan No. CJ15562-1, "Dedication Plan for Siemens Molded Case Circuit Breaker P/N: ED63B025," Revision 2, dated April 19, 2019 and associated Dedication File No. CJ15562.1
- Dedication Plan No. CJ17568-1, "Dedication Plan for Aurora Pump CO. Pump P/N: Model 3801 (9 DSB 28502) and Curtiss Wright Pump Mount Plate Assy P/N: CJ17568-100," Revision 3, dated December 14, 2022
- Supplier Surveillance Report No. CP18504-02, Item Surveyed: pump assembly consisting of pump and motor, dated October 7, 2022
- CGI-004 Dedication Worksheet, Document No. CP20077-1-01-DP, Job No. CJ18783, Revision 0
- CGI-004 Dedication Worksheet, Document No. CP18637-2-01-DP. Job No. CJ14719, Revision 0
- Metallurgical Laboratory Report Nos. Met-14610A, Met-14610B, Met-14610C, and Met-14610D, dated November 17, 2022

- Test Report No. 104779559SAT-003A, "Curtis-Wright IEEE 383-1974," dated September 28, 2021

Audit Reports, Commercial-Grade Surveys, and Certificates of Conformance/Compliance

- Approved Vendors List - Commercial Grade Items/Services, Revision 2
- Approved Vendors List - Safety Related and ASME Code Items and Services, Revision 2
- Annual Vendor Evaluation, dated June 14, 2022
- Annual Vendor Evaluation, dated May 11, 2022
- Annual Vendor Evaluation for a supplier of electrical testing services, dated October 3, 2022
- Annual Vendor Evaluation for a supplier of material testing services, dated January 26, 2023
- Commercial-Grade Survey of a supplier of electrical testing services, dated June 13, 2022
- Commercial Grade Survey of a supplier of material testing services, dated April 7, 2022
- Curtiss-Wright's Certificate of Conformance/Compliance for three Schrader Bellows Control Valve, Purchase Order (PO) No. 1053792, dated May 18, 2018
- Curtiss-Wright's Certificate of Conformance/Compliance for two repair kits (no date provided)
- Nuclear Industry Assessment Committee (NIAC) Member Assessment No. 2703B, dated June 24, 2022
- NIAC Audit Report No. 25065, dated June 12, 2020
- NIAC Audit Report No. 25034, dated March 29, 2021
- Vendor External Audit report, dated June 30, 2021
- Vendor External Audit report, dated November 28, 2022
- Certificate of Conformance, CP00017482, dated June 25, 2021
- Certificate of Conformance, CP 20223, dated February 10, 2023
- Certificate of Conformance, CP 20271, dated January 6, 2023
- Certificate of Conformance, CP 20464, dated December 30, 2022
- Certificate of Compliance, 2022001885, dated August 24, 2021
- Certificate of Compliance, CP 00019830, dated November 14, 2022

## Purchase Orders

- PO No. CP00019201 for calibration services, dated February 3, 2022
- PO No. CP00020384 for testing services, dated November 3, 2022
- PO No. CP00018504 for testing services, Revision 2, dated September 1, 2021
- PO No. CP00018174 for calibration services, Revision 1, dated September 21, 2021
- PO No. CP00020417 for electrical testing services, Revision 1, dated November 18, 2022
- PO No. CP00013171 for material testing services, Revision 4, dated August 8, 2022
- PO No. CP0002077 for material, Revision 0, dated August 19, 2022 and the associated receipt inspection reports
- PO No. CP00018781 for material for weld testing, Revision 0, dated October 20, 2021 and the associated receipt inspection reports
- PO No. CP00018637 for test plates, Revision 0, dated September 17, 2021 and the associated receipt inspection reports
- PO No. 4000023109, dated January 20, 2022
- PO No. 01363276, dated October 6, 2022
- PO No. 10686984, dated January 23, 2023
- PO No. CP00017482, date November 19, 2020
- PO No. CP00020223, dated September 26, 2022
- PO No. 7415677, dated January 18, 2023
- PO No. CP00014660, dated June 29, 2020
- PO No. CP00020271, dated October 6, 2022
- PO No. CP00020464, dated November 28, 2022
- PO No. CP 00020465, dated November 28, 2022
- PO No. CP00020363, dated October 28, 2022
- PO No. CP0019830, dated November 17, 2022

## Receipt Inspection Reports

- Receipt Inspection Report No. CP20223-1-01, dated February 15, 2023
- Receipt inspection report No. CP20271-1-01, dated January 9, 2023
- Receipt inspection report No. CP20464-1-01, dated January 03, 2023
- Receipt inspection report No. CP20465-1-01, dated January 4, 2023
- Receipt inspection report No. CP20363, dated November 08, 2022

#### Certificates of Calibration

- Caliper Calibration Report No. 12.005, dated March 21, 2022
- Certificate of Calibration No. 2022000239 for a circuit breaker test equipment, dated February 15, 2022
- Certificate of Calibration No. A4830637 for a multimeter, dated November 30, 2022
- Certificate of Calibration No. A4579693 for a micro-ohm meter, dated May 24, 2022
- Certificate of Calibration No. A4517922 for a digital multimeter, dated April 8, 2022
- Certificate of Calibration No. A4697215 for a digital clock, dated August 19, 2022
- Certificate of Calibration No. A4491943 for a scale, dated March 18, 2022
- Certificate of Calibration No. A4502935 for an insulation and continuity tester, dated March 28, 2022
- Certificate of Calibration No. A4355853 for a surface plate, dated December 4, 2021
- Certificate of Calibration No. A4190617 for gage block set, dated July 26, 2021
- Certificate of Calibration No. 15-F460B-460-1 for an outside micrometer, dated March 29, 2021
- Certificate of Calibration No. 15-FZ4BQ-100-1 for a gage block set, dated December 9, 2020
- Certificate of Calibration No. 15-FZ4BQ-80-1 for a gage block set, dated December 9, 2020
- Certificate of Calibration No. 15-FZ4BQ-120-1 for a gage block set, dated December 11, 2020
- Certificate of Calibration No. A4754788 for a pressure gage, dated October 4, 2022
- Certificate of Calibration No. A4715744 for a pressure gage, dated September 1, 2022

- Certificate of Calibration No. 403788 for a pressure gage, dated June 14, 2022
- Calibration Certificates for accelerometers with serial Nos. 151127, 151129, 151130, 140137, 150765, 150766, 139030, LW156362, LW156291, dated November 30, 2021 and May 6, 2022
- Certificate of Calibration No. 2022001878, dated November 8, 2023

#### Condition Reports and Corrective Action Reports

- C13-264, dated June 20, 2013
- C13-265, dated June 20, 2013
- C23-6897, dated January 19, 2023
- C23-6872, dated January 4, 2023
- C22-6562, dated July 25, 2022
- C22-6206, dated January 26, 2022
- C22-6238, dated February 11, 2022
- C22-6658, dated September 14, 2022
- C22-6708, dated September 30, 2022
- C21-5931, dated August 26, 2021
- C22-6333, dated March 31, 2022
- C20-5366, dated November 23, 2020
- C20-5266, dated September 25, 2020
- C22-6658, dated September 14, 2022
- C22-6333, dated March 31, 2022
- C22-6238, dated February 11, 2022
- C22-6498, dated June 17, 2022
- C21-5931, dated August 26, 2021
- C22-6250, dated February 23, 2022
- C22-6759, dated October 26, 2022
- C22-6536, dated July 13, 2022
- C22-6345, dated April 5, 2022
- C22-6234, dated February 9, 2022
- C21-5817, dated July 7, 2021
- C22-6209, dated January 28, 2022
- CR22-6823, dated December 1, 2022
- C23-6876, dated January 5, 2023
- C22-6670, dated September 17, 2022
- C23-6942, dated February 13, 2023
- C22-6707, dated September 29, 2022
- CAR-NOA-2014-200, dated December 23, 2014
- CAR-2014-009, dated October 30, 2014
- CAR-2014-013, dated October 30, 2014
- CAR-2015-010, dated October 30, 2014
- CAR-2015-011, dated October 30, 2014
- CAR-2015-012, dated October 30, 2014

#### Condition Reports Opened During the NRC Inspection

- C23-6952, dated February 17, 2023
- C23-6950, dated February 16, 2023
- C23-6954, dated February 17, 2023
- C23-6951, dated February 17, 2023
- C23-6966, dated February 27, 2023

#### Qualification and Training Records

- Mark McClung, Lead auditor
- Kevin Green, QA Engineer
- Darren Myers, Test Technician
- Kevin Green, QA Engineer, Qualtech Level III
- Jack Helvey, QC inspector, NDE Level II, VT/MT/PT
- Thomas Hockenberry, Seismic Test Technician
- Joe Czinege, Seismic Test Technician