



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

September 6, 2019

Ms. Rosalie Nava  
Quality Assurance Manager  
Curtiss-Wright Enertech  
2950 E. Birch St.  
Brea, CA 92821

SUBJECT: NUCLEAR REGULATORY COMMISSION VENDOR INSPECTION REPORT OF  
CURTISS-WRIGHT ENERTECH, NO. 99901377/2019-201 AND NOTICE OF  
NONCONFORMANCE

Dear Ms. Nava:

From July 22 through July 26, 2019, the U.S. Nuclear Regulatory Commission (NRC) staff conducted an inspection at the Curtiss-Wright Enertech (hereafter referred to as Enertech) facility in Brea, California. The purpose of this limited-scope inspection was to assess Enertech's compliance with the 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 Enertech's implementation of quality activities associated with the fabrication and testing of safety-related components being supplied to the U.S. nuclear power plants (operating and under construction). The enclosed report presents the results of the inspection. This NRC inspection report does not constitute NRC endorsement of Enertech's overall quality assurance (QA) or 10 CFR Part 21 programs.

Based on the results of this inspection, the NRC inspection team found that the implementation of your QA program did not meet certain regulatory requirements imposed on you by your customers or NRC licensees. Specifically, the NRC inspection team determined that Enertech was not fully implementing its QA program in the area of control of purchased material, equipment, and services. The specific finding and references to the pertinent requirements are identified in the enclosures to this letter. In response to the enclosed Notice of Nonconformance (NON), Enertech should document the results of the extent of condition review for the finding and determine if there are any effects on other safety-related components. Please provide a written statement or explanation within 30 days of this letter in accordance with the instructions specified in the enclosed NON. We will consider extending the response time if you show good cause for us to do so.

In accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding," of the NRC's "Rules of Practice," the NRC will make available electronically for public inspection a copy of this letter, its enclosure, and your response through the NRC's Public Document Room or from the NRC's Agencywide Documents Access and Management System, which is

accessible at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response, should not include any personal privacy, proprietary, or Safeguards Information (SGI) so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request that such material be withheld from public disclosure, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim (e.g., explain why the disclosure of information would create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If SGI is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21, "Protection of Safeguards Information: Performance Requirements."

Sincerely,

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

Docket No.: 99901377  
EPID No.: I-2019-201-0058

Enclosure:

1. Notice of Nonconformance
2. Inspection Report No. 99901377/2019-201  
and Attachment

SUBJECT: NUCLEAR REGULATORY COMMISSION VENDOR INSPECTION REPORT OF  
CURTISS-WRIGHT ENERTECH, NO. 99901377/2019-201 AND NOTICE OF  
NONCONFORMANCE Dated: September 6, 2019

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NRR-106

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<b>DATE</b>	09/05/2019	09/04/2019	09/05/2019
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<b>DATE</b>	09/04/2019	09/05/2019	09/6/2019

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## **NOTICE OF NONCONFORMANCE**

Curtiss-Wright Enertech  
2950 E. Birch St.  
Brea, CA 92821

Docket No. 99901377  
Report No. 2019-201

Based on the results of a U.S. Nuclear Regulatory Commission (NRC) inspection conducted at the Curtiss-Wright Enertech (hereafter referred to as Enertech) facilities located at Brea, California, from July 22 through July 26, 2019, Enertech did not conduct certain activities in accordance with NRC requirements that were contractually imposed upon Enertech by its customers or NRC licensees:

- A. Criterion VII, "Control of Purchased Material, Equipment, 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," states, in part, that "Measures shall be established to assure that purchased material, equipment, and services, whether purchased directly or through contractors and subcontractors, conform to the procurement documents. These measures shall include provisions, as appropriate, for source evaluation and selection, objective evidence of quality furnished by the contractor or subcontractor, inspection at the contractor or subcontractor source, and examination of products upon delivery."

Subsection NCA-3842.2, "Evaluation of the Qualified Material Organization's Program by Certified Material Organizations of Certificate Holders," of Section III, "Rules for Construction of Nuclear Facility Components," of the American Society of Mechanical Engineers (ASME) Boiler & Pressure Vessel (B&PV) Code, states, in part, that "Evaluation of a Material Organization's Quality System Program by parties other than the Society, as provided by NCA-3820(b), shall be performed in accordance with the requirements of (a) through (i) below. [...] (a) The Quality System Program shall be surveyed, accepted, and audited by the party performing the evaluation on the basis of its compliance with the applicable material requirements of this Section and the requirements of NCA-4250."

Contrary to the above, as of July 26, 2019, Enertech failed to establish adequate measures for source evaluation and selection of contractors and subcontractors to assure that purchased material, equipment, and services conformed to procurement documents. Specifically, Enertech procured safety-related forgings from a commercial supplier that was inadequately qualified by Enertech as a Material Organization with a quality program that meets the applicable requirements of Sub-article NCA-4250, "Quality System Program Requirements," of the ASME B&PV Code. Enertech's qualification record did not contain sufficient objective evidence to support the conclusion that the commercial supplier had met the controls and applicable requirements of Subsection NCA-4250.

This issue has been identified as Nonconformance 99901377/2019-201-01.

Please provide a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Chief, Quality Assurance Vendor Inspection Branch, Division of Inspection and

Enclosure 1

Regional Support, Office of Nuclear Reactor Regulation, within 30 days of the date of the letter transmitting this Notice of Nonconformance. This reply should be clearly marked as a "Reply to a Notice of Nonconformance" and should include for each noncompliance: (1) the reason for the noncompliance or, if contested, the basis for disputing the noncompliance; (2) the corrective steps that have been taken and the results achieved; (3) the corrective steps that will be taken to avoid further noncompliance; and (4) the date when the corrective action will be completed. Where good cause is shown, the NRC will consider extending the response time.

Because your response will be made available electronically for public inspection in the NRC's Public Document Room or from the NRC's Agencywide Documents Access and Management System, which is accessible from the NRC Web site at <http://www.nrc.gov/readingrm/adams.html>, to the extent possible, it should not include any personal privacy, proprietary, or Safeguards Information (SGI) so that the NRC can make it available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request that such material be withheld, you shall specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information would create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If SGI is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21, "Protection of Safeguards Information: Performance Requirements."

**U.S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF NUCLEAR REACTOR REGULATION  
DIVISION OF INSPECTION AND REGIONAL SUPPORT  
QUALITY ASSURANCE VENDOR INSPECTION REPORT**

Docket No.: 99901377

Report No.: 99901377/2019-201

Vendor: Curtiss-Wright Enertech  
2950 E. Birch St.  
Brea, CA 92821

Vendor Contact: Ms. Rosalie Nava, Director Quality Assurance  
Enertech, a Division of Curtiss-Wright Nuclear  
E-mail : rnava@curtisswright.com  
Phone : (714) 982-1872

Nuclear Industry Activity: Curtiss-Wright Enertech supplies safety-related American Society of Mechanical Engineers Boiler and Pressure Vessel Code valves, safety-related pumps, large bore and pipe support snubbers, pneumatic actuators, motors, safety-related instrumentation, diagnostic and test equipment, service and repair, and engineering services to the nuclear industry.

Inspection Dates: July 22-26, 2019

Inspection Team Leader Greg Galletti NRR/DIRS/IQVB  
Inspectors: Yamir Diaz-Castillo NRR/DIRS/IQVB  
Raju Patel NRR/DIRS/IQVB  
Jonathan Ortega-Luciano 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

## **EXECUTIVE SUMMARY**

Curtiss-Wright Enertech  
99901377/2019-201

The U.S. Nuclear Regulatory Commission (NRC) staff conducted this vendor inspection to verify that Curtiss-Wright Enertech (hereafter referred to as Enertech) 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, and "Domestic Licensing of Production and Utilization Facilities," and 10 CFR Part 21, "Reporting of Defects and Noncompliance." In addition, the NRC inspection team verified that Enertech had implemented a program in accordance with the applicable requirements of Section III, "Rules for Construction of Nuclear Facility Components," of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code. The NRC inspection team conducted this inspection at the Enertech's facility in Brea, California, on July 22-26, 2019. This was the third NRC inspection at Enertech's Brea facility.

This technically-focused inspection evaluated Enertech's implementation of the quality activities associated with the design, fabrication, and testing of forgings, valves, and pressure vessels for use in nuclear safety-related system applications.

During this inspection, the NRC staff specifically evaluated aspects of Enertech's programs associated with 10 CFR Part 21, design control, commercial grade dedication (CGD), supplier oversight, test control, control of measurement and test equipment (M&TE), nonconformances and corrective action (CA) implementation. These activities were associated with current and completed activities related to purchase orders for Westinghouse AP1000 components parts and services, as well as for the current operating fleet.

Specific activities observed by the NRC inspection included:

- Assembly and functional pressure test on an accumulator on Project No. 801519 for Vogtle Electric Generating Plant
- Assembly of refurbished rotary 42K actuator on Project No. 520372 for Hope Creek Nuclear Plant
- Hydrostatic test of two ½-inch SAE adapters on Project No. 608358 for Vogtle Electric Generating Plant
- Welding Procedure Qualification of Welding Procedure Specification No. MA328055, using the manual Gas Tungsten Arc Welding process
- Receipt inspection of a valve body, 6-inches, Class 900, DRV-Z weld overlay, ASMEB&PV Code, Section III Class 3, 1974 Edition with 1975 Summer Addenda

With the exception of the nonconformance described below, the NRC inspection team concluded that Enertech'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 Enertech's personnel are implementing these policies and procedures effectively.

The results of this inspection are summarized below.

## 10 CFR Part 21 Program

The NRC inspection team reviewed Enertech's policies and implementing procedures that govern the implementation of its 10 CFR Part 21 program. The NRC inspection team reviewed a sample of CA requests to determine if any of these deficiencies should have been evaluated in accordance with the Enertech's 10 CFR Part 21 program, and reviewed evaluations performed by Enertech to ensure conformance with their administrative controls.

The NRC inspection team did identify a minor issue related with Enertech not imposing 10 CFR Part 21 in safety-related purchase orders (POs). The NRC inspection team determined this issue to be minor because Enertech requires their suppliers to notify them of any nonconformances. Enertech initiated Corrective Action Request (CAR) No. 2179 to address this issue. This issue is further addressed in the Section on Supplier Oversight of this report. No findings of significance were identified.

## Commercial-Grade Dedication

The NRC inspection team reviewed Enertech's policies and implementing procedures that govern the implementation of its CGD programs to verify compliance with the requirements of Criterion III, "Design Control," Criterion IV, "Procurement Document Control," and Criterion VII, "Control of Purchased Material, Equipment, and Services," of Appendix B. The NRC inspection team reviewed a sample of CGD packages to assess the different elements of Enertech's CGD program.

The NRC inspection team did identify a minor issue related to inconsistency on documenting commercial-grade survey reports. Specifically, the NRC inspection team identified examples of 1) checklists used to support the conclusion of these reports did not identify the applicable critical characteristics; and 2) lack of objective evidence to demonstrate that the critical characteristics identified in the technical evaluation were verified to be controlled by the commercial supplier. The NRC inspection team determined this to be a minor issue since Enertech perform additional tests and verifications as part of the acceptance/receiving process by quality control (QC) and based on interviews with QA and Engineering staff where it was explained how the control for the critical characteristics in question were evaluated but not documented properly in the checklist. Enertech initiated CAR No. 2183 to address this issue. No findings of significance were identified.

## Supplier Oversight

The NRC inspection team reviewed Enertech's policies and implementing procedures that govern the implementation of its supplier oversight program to verify compliance with the requirements of Criterion IV and Criterion VII of Appendix B to 10 CFR Part 50. The NRC inspection team identified three minor issues and one nonconformance associated with Enertech's supplier oversight activities.

The NRC inspection team identified that Enertech did not impose the regulatory requirements of Appendix B to 10 CFR Part 50 in accordance with Criterion IV on two safety-related POs for a disc casting and two elbow forgings. The NRC inspection team determined this issue to be minor because Enertech did impose that the material be manufactured to the applicable requirements of the ASME B&PV Code and under the supplier's QA program evaluated and approved by Enertech. Enertech initiated CAR No. 2179 to address this issue.



The NRC inspection team also identified that as part of several external audits, Enertech was verifying the suppliers' implementation of their 10 CFR Part 21 programs. However, the audit checklists did not provide sufficient objective evidence to support the conclusion that these suppliers had implemented an adequate 10 CFR Part 21 program. The objective evidence provided in the checklists suggested that the suppliers would notify Enertech of any nonconformance and then Enertech would perform the required 10 CFR Part 21 evaluations and notifications, as applicable. The NRC inspection team determined this issue to be minor because (1) by regulation, Enertech is not required to verify the implementation of a supplier's 10 CFR Part 21 program, and (2) Enertech requires their suppliers to notify them of any nonconformance. Enertech initiated CAR No. 2179 to address this issue.

Furthermore, during the review of a sample of external audit reports for suppliers of safety-related services, the NRC inspection team noted that these suppliers were qualified as safety-related suppliers using commercial-grade survey checklists. Rather than verifying if this supplier had quality control measures in place to meet the applicable requirements Appendix B to 10 CFR Part 50 for their scope of supply, Enertech instead performed a commercial-grade survey. A commercial-grade survey is not intended to verify or determine if a supplier's commercial quality controls meet the requirements of an Appendix B to 10CFR50 QA program. However, the NRC inspection team further reviewed evaluated Enertech's assessment of these suppliers and determined the quality programs demonstrated that quality control measures were in place to provide adequate confidence of the service provided in this case. The NRC inspection team determined this issue to be minor because Enertech verified that the suppliers of calibration services were adequately implementing quality control measures consistent with the requirements of Appendix B to 10 CFR Part 50 for their scope of supply. Enertech initiated CAR No. 2177 to address this issue.

The NRC inspection team issued Nonconformance 99901377/2019-201-01 in association with Enertech's failure to establish adequate measures for source evaluation and selection of contractors and subcontractors to assure that purchased material, equipment, and services conformed to procurement documents. Specifically, Enertech procured safety-related forgings from a commercial supplier that was inadequately qualified by Enertech as a Material Organization with a quality program that meets the applicable requirements of NCA-4250, "Quality System Program Requirements," of the ASME B&PV Code. Enertech's qualification record did not contain sufficient objective evidence to support the conclusion that the commercial supplier had met the controls and applicable requirements of Subsection NCA-4250.

#### Identification and Control of Material, Parts, and Components

The NRC inspection team reviewed Enertech's policies and implementing procedures that govern the material identification and traceability program to verify compliance with the regulatory requirements of Criterion VIII, "Identification and Control of Material, Parts, and Components," of Appendix B to 10 CFR Part 50. The NRC inspection team performed a walk-down of the following areas at Enertech's facility: receipt and final inspection, fabrication and storage, M&TE laboratory, testing, weld material storage, and nonconforming material storage. The NRC inspection team confirmed that safety-related materials were adequately identified with Enertech's unique number traceable to Enertech's POs and vendor certification reports. The NRC inspection team also observed Enertech's personnel appropriately transferring the material identification and traceability markings during various stages of fabrication. No findings of significance were identified.

### Control of Special Processes

The NRC inspection team reviewed Enertech's policies and implementing procedures that govern the 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 as well as Section V, "Nondestructive Examination," and Section IX, "Welding and Brazing Qualification," of the ASME B&PV Code. The NRC inspection team reviewed completed test reports associated with weld records, visual inspection reports of welds, and liquid penetrant testing reports, Enertech's written practice for the certification and qualification of nondestructive examination (NDE) personnel and confirmed they were consistent with the latest revision of the American Society for Nondestructive Testing Recommended Practice SNT-TC-1A, "Personnel Qualification and Certification in Nondestructive Testing," and Section III of the ASME B&PV Code. The NRC inspection team also reviewed a sample of welders' performance qualification records and confirmed they were consistent with the requirements of Section IX and Section III of ASME B&PV Code. No findings of significance were identified.

### Test Control

The NRC inspection team reviewed Enertech's policies and implementing procedures that govern the 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 reviewed Enertech's test procedures and witnessed performance functional pressure test of an accumulator and a hydrostatic test of two safety-related adapters and confirmed that applicable customer specifications were correctly translated into production orders and test procedures, confirmed the test were performed in accordance with Enertech's test procedure by qualified test personnel using calibrated M&TE within their frequency and range of operation, and independently verified by a Quality Control Inspector. No findings of significance were identified.

### Control of Measuring and Test Equipment

The NRC inspection team reviewed Enertech's policies and implementing procedures that govern the control of the 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. The NRC inspection team observed that M&TE was calibrated, labeled, tagged, handled, stored, or otherwise controlled to indicate the calibration status and its traceability to nationally recognized standards. The NRC inspection team also confirmed that when M&TE is lost or found to be out of calibration, Enertech initiates a Nonconforming Material Report to determine the extent of condition and evaluate the validity of previous measurements. No findings of significance were identified.

### Nonconforming Materials, Parts, or Components

The NRC inspection team reviewed the policies and procedures that govern the implementation of Enertech's non-conformance control program to verify compliance with the regulatory requirements in Criterion XV, "Nonconforming Materials, Parts or Components," of Appendix B to 10 CFR Part 50.

The NRC inspection team reviewed a sample of recent nonconforming material reports (NMRs) originating in various phases of the operations including receipt inspection,

fabrication/assembly, and final inspection, to confirm adequate implementation of the process in accordance with the vendor's implementing procedures. The sample included issues that were resolved through use as is, rejection, and repair activities. The NRC inspection team verified that nonconforming conditions were adequately documented, reviewed, tracked, and dispositioned in accordance with the implementing procedures. For NMRs that were dispositioned as use as is, the NRC inspection team confirmed the technical justifications were documented to verify the acceptability of the nonconforming items. No findings of significance were identified.

### Corrective Actions

The NRC inspection team reviewed Enertech's policies and implementing procedures that govern the implementation of its corrective action program to determine compliance with the requirements of Criterion XVI, "Corrective Action," of Appendix B to 10 CFR Part 50. The NRC inspection team also reviewed a sample of items entered into the Enertech corrective action program during the last several years.

The NRC inspection team reviewed the corrective actions that Enertech had taken to address Notice of Nonconformance (NON) 99901377/2012-201-02 and NON 99901377/2012-201-03 documented in NRC inspection report (IR) No. 99901377/2012-201 dated November 2, 2012. These NONs are Inspection, Tests, Analyses and Acceptance Criteria (ITAAC)-related findings associated with the functional qualification testing of ERZ-8-inch check valve in accordance with the requirements of ASME QME-1, "Qualification of Active Mechanical Equipment Used in Nuclear Facilities," 2007 edition. The NRC inspection team reviewed the documentation that provided objective evidence that all corrective actions were completed and adequately implemented. Based on this review and interview with Engineering personnel, the NRC inspection team closed the NONs 99901377/2012-02 and 99901377/2012-201-03 documented in the 2012 IR.

The results of this inspection effort are described in further detail in the section on Nonconforming Materials, Parts, or Components. No findings of significance were identified.

## **REPORT DETAILS**

### **1. 10 CFR Part 21 Program**

#### **a. Inspection Scope**

The Nuclear Regulatory Commission (NRC) inspection team reviewed the policies and implementing procedures that govern the implementation of Curtiss-Wright Enertech's (herein referred to as Enertech) Title 10 of the Code of Federal Regulations (10 CFR) Part 21, "Reporting of Defects and Noncompliances," program to determine compliance with the applicable regulatory requirements. In addition, the NRC inspection team evaluated the 10 CFR Part 21 postings and a sample of Enertech's purchase orders (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 evaluated whether Enertech's nonconformance and corrective action programs were sufficiently integrated such that issues identified would be appropriately considered for 10 CFR Part 21 evaluation and reportability, as applicable.

The NRC inspection team reviewed Enertech's procedure to perform a 10 CFR Part 21 evaluation and determined that it addressed the requirements for evaluating deviations and failures to comply. The NRC inspection team reviewed a sample of 10 CFR Part 21 evaluations performed by Enertech over the past several years and verified that Enertech had effectively implemented the requirements for evaluating deviations and failures to comply and notified customers and the regulatory agency, as appropriate.

The NRC inspection team discussed the 10 CFR Part 21 program with Enertech'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**

The NRC inspection team did identify a minor issue related to implementation of the requirements associated with procurement documents. The NRC inspection team determined this issue to be minor because Enertech did impose that the material be manufactured to the applicable requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code and under the supplier's Quality Assurance (QA) program evaluated and approved by Enertech and the suppliers were required to notify Enertech of any nonconforming conditions. The issue is described in additional detail in Section 3 b.1, Procurement Document Control, of this report. Enertech initiated Corrective Action Request (CAR) number (No.) 2179 to address this issue. No findings of significance were identified.

#### **c. Conclusion**

The NRC inspection team concluded that, with the exception of the minor issue identified, Enertech established 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 Enertech is implementing its

policies and procedures associated with the 10 CFR Part 21 program. No findings of significance were identified.

## 2. Commercial-Grade Dedication

### a. Inspection Scope

The NRC inspection team reviewed Enertech'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, "Design Control," Criterion IV, "Procurement Document Control," and Criterion VII, "Control of Purchased Material, Equipment, and Services," of Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities."

The NRC inspection team reviewed a sample of commercial-grade dedication plans, reports, associated POs, and commercial-grade surveys of several commercial suppliers on Enertech's Approved Suppliers List (ASL) to assess the different elements of the CGD program. The NRC inspection team verified that the technical evaluations documented the criteria for the identification of item functions, credible failure mechanisms/modes, selection of critical characteristics and acceptance criteria, the identification of verification methods, and justification of the sampling methodologies as applicable. Further, the NRC inspection team reviewed the dedication packages, associated drawings and inspection reports to verify that the critical characteristics and acceptance methods were correctly specified, that the drawings and material specifications containing the associated acceptance criteria for each critical characteristic were referenced, and that the inspection reports adequately documented the acceptance of the critical characteristics to verify effective implementation of Enertech's CGD process.

The NRC inspectors also discussed the CGD program with Enertech's management and technical staff. The attachment to this inspection report lists the documents reviewed by the NRC inspection team.

### b. Observations and Findings

During a review of a sample of commercial-grade survey reports, the NRC inspection team noted that there were some inconsistencies among the checklist included in the reports with regards to the identification of the critical characteristics of the item(s) that the commercial suppliers were expected to control, identification of the controls to be applied (program/procedure and revision), and a description of the verification activities evaluated. Because of the lack of objective evidence in reviewing the commercial controls in several areas, reasonable assurance can't be gained that the supplier's commercial-grade items were subject to adequate quality activities and that the supplier properly controls the critical characteristics. The NRC inspection team determined this to be a minor issue since Enertech: (1) performs additional tests and verifications as part of the receiving/acceptance process by quality control (QC) and; (2) based on interviews with QA and Engineering it was explained how the control for the critical characteristics in question were evaluated but not documented properly in the checklist reviewed by the NRC inspection team. Enertech initiated CAR No. 2183 to address this issue. No findings of significance were identified.

c. Conclusion

The NRC inspection team concluded that, with the exception of the minor issue identified, Enertech established its CGD program in accordance with the regulatory requirements of Criteria III, IV, and VII of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that Enertech is implementing its policies and procedures associated with the CGD program. No findings of significance were identified.

3. Supplier Oversight

a. Inspection Scope

The NRC inspection team reviewed Enertech's policies and implementing procedures that govern the implementation of its supplier oversight program to verify compliance with the requirements of Criterion IV and Criterion VII of Appendix B to 10 CFR Part 50.

For the sample of POs reviewed, the NRC inspection team verified that the POs included, as appropriate: (1) the applicable technical, quality, and regulatory requirements, and (2) identification of the applicable codes and standards. The NRC inspection team also found that these POs adequately defined contract deliverables, instructions for the disposition of nonconformances, access rights, and provisions for the extension of contractual requirements to subcontractors.

For the sample of external audits reviewed, the NRC inspection team verified that the audit reports included: (1) an audit plan, (2) any findings identified, (3) documented objective evidence of compliance with the applicable requirements, and (4) a review by Enertech's responsible management.

Enertech is a member of the Nuclear Industry Assessment Committee (NIAC), which consists of companies who supply materials and services to the nuclear industry based on a QA program that meets the requirements of Appendix B to 10 CFR Part 50 and accept 10 CFR Part 21. NIAC develops and maintains procedures and processes necessary to plan, guide, and share supplier evaluations (audits) with its members. Enertech uses NIAC audits to support the qualification and maintenance of some of its suppliers. Once a NIAC audit is received, Enertech's QA Manager reviews the audit for completeness and adequacy, evaluates the audit report in accordance with Enertech's QA program and the appropriateness of the scope, and approves the audit report as the basis for including the supplier on the ASL. The QA Manager's review and acceptance is documented in an Assessment Evaluation Form.

The NRC inspection team also observed the receipt inspection of a valve body, 6-inches, Class 900, DRV-Z weld overlay, manufactured in accordance with Section III, "Rules for Construction of Nuclear Facility Components," Class 3, of the ASME B&PV Code, 1974 Edition with 1975 Summer Addenda. The QC inspector performed several dimensional inspections using both an outside spring caliper and a digital caliper to verify conformance with the applicable specifications of drawing No. MD32530, "Body, 6", Class 900, DRV-Z Weld Overlay," Revision B. The NRC inspection team also confirmed that both calipers were adequately calibrated.

The NRC inspection team also discussed the supplier oversight program with Enertech's management and technical staff. The attachment to this inspection report lists the documents reviewed and the staff interviewed by the NRC inspection team.

b. Observations and Findings

b.1 Procurement Document Control

During a review of a sample of safety-related POs for a water-sphere disc casting and two elbow forgings procured as basic components, the NRC inspection team noted that Enertech did not impose the regulatory requirements of Appendix B to 10 CFR Part 50, and 10 CFR Part 21 in accordance with Criterion IV and 10 CFR Part 21.31, respectively. To ensure that material with safety functions have adequate QA applied, POs shall specify compliance with the requirements of Appendix B to 10 CFR Part 50 and 10 CFR Part 21. In addition, imposing Appendix B to 10 CFR Part 50 and 10 CFR Part 21 in the POs ensures that it is passed down to the sub-suppliers.

The NRC inspection team determined this issue to be minor because Enertech did impose that the material be manufactured to the applicable requirements of the ASME B&PV Code and under the supplier's QA program evaluated and approved by Enertech and the suppliers were required to notify Enertech of any nonconforming conditions. Enertech initiated CAR No. 2179 to address this issue.

b.2 Supplier Oversight and Qualification

Enertech's ASL includes both safety-suppliers and suppliers that are qualified as Material Organizations (MOs) with a quality program that meets the applicable requirements of NCA-4250, "Quality System Program Requirements," in accordance with the requirements of Subparagraph NCA-3842.2, "Evaluation of the Qualified Material Organization's Program by Certified Material Organizations of Certificate Holders," of Subsection NCA, "General Requirements for Division 1 and Division 2," of Section III of the ASME B&PV Code. During the review of a sample of external audit reports of safety-related suppliers and material suppliers qualified as MOs, the NRC inspection team noted that as part of the audits, Enertech was also verifying the suppliers' implementation of their 10 CFR Part 21 programs. However, the audit checklists did not provide sufficient objective evidence to support the conclusion that these suppliers had implemented an adequate 10 CFR Part 21 program. The objective evidence provided in the checklists seemed to suggest that these suppliers would notify Enertech of any nonconformances and then Enertech would perform the required 10 CFR Part 21 evaluations and notifications, as applicable.

The NRC inspection team determined this issue to be minor because (1) by regulation, Enertech is not required to verify the implementation of a supplier's 10 CFR Part 21 program, and (2) Enertech requires their suppliers to notify them of any nonconformances. Enertech initiated CAR No. 2179 to address this issue.

During the review of a sample of external audit reports for suppliers of safety-related calibration services, the NRC inspection team noted that these suppliers were qualified as safety-related suppliers using commercial-grade survey checklists.

Rather than verifying if this supplier had quality control measures in place to meet the applicable requirements Appendix B to 10 CFR Part 50 for their scope of supply, Enertech instead performed a commercial-grade survey. A commercial-grade survey is not intended to verify or determine if a supplier's commercial quality controls meet the requirements of an Appendix B to 10CFR50 QA program. Upon further discussion with Enertech's staff and a review of the POs for these suppliers, the NRC inspection team confirmed that Enertech had procured the calibration services as safety-related by imposing the regulatory requirements of Appendix B to 10 CFR Part 50 and 10 CFR Part 21. The NRC inspection team evaluated Enertech's assessment of these suppliers and determined the quality programs demonstrated that quality control measures were in place to provide adequate confidence of the service provided. The NRC inspection team determined this issue to be minor because Enertech verified that the suppliers of calibration services were adequately implementing quality control measures that are consistent with the requirements of Appendix B to 10 CFR part 50 for their scope of supply. Enertech initiated CAR No. 2177 to address this issue.

During the review of the commercial-grade survey reports, the NRC inspection team identified a supplier that provides forging services to Enertech that was not properly evaluated for the scope of work being provided. During the evaluation of the commercial-grade survey, the NRC inspection team noted that the scope of work for this supplier included manufacturing two elbow forgings as safety-related and Section III of the ASME B&PV Code applications utilizing material furnished by Enertech. To validate the scope of work, the NRC inspection team verified how this supplier was approved in Enertech's ASL. According to the ASL this supplier provides forging for safety-related and ASME B&PV Code application and have a program that meets the requirements of Appendix B to 10 CFR Part 50 and 10 CFR Part 21.

As part of this commercial-grade survey, Enertech utilized one checklist to performed both a commercial-grade survey and an evaluation with the intent to qualify this supplier as a MO with a quality program that meets the applicable requirements of NCA-4250, in accordance with the requirements of Subparagraph NCA-3842.2 of Subsection NCA of Section III of the ASME B&PV Code. During the evaluation of the check list utilized, the NRC inspection team noted that the objective evidence as documented did not contain sufficient objective evidence to support the conclusion that the commercial supplier had met the controls and applicable requirements of Subsection NCA-4250. The NRC inspection team identified this issue as Nonconformance 99901377/2019-201-01 for Enertech's failure to adequately qualify this supplier as an MO by evaluate their quality system to verify its compliance with the applicable material requirements of NCA-3842.2, NCA-4250, and applicable QA requirements of Appendix B to 10 CFR Part 50. Enertech initiated CAR No. 2182 to address this issue.

c. Conclusion

The NRC inspection team issued Nonconformance 99901377/2019-201-01 in association with Enertech's failure to implement the regulatory requirements of Criterion VII, of Appendix B to 10 CFR Part 50. Nonconformance 99901377/2019-201-01 cites Enertech for failing to adequately qualify a supplier of forgings as an MO in accordance



with the applicable requirements of NCA-3842.2, NCA-4250, and the applicable QA requirements of Appendix B to 10 CFR Part 50.

#### 4. Control of Measuring and Test Equipment (M&TE)

##### a. Inspection Scope

The NRC inspection team reviewed Enertech's policies and implementing procedures that govern the 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.

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. The calibration records associated with the M&TE indicated the as-found or as-left conditions, accuracy required, calibration results, calibration dates, the due date for recalibration, and the applicable National Institute of Standards and Technology traceable reference equipment used in the calibration.

The NRC inspection team also verified that when M&TE is found to be out of tolerance when being calibrated, or when the M&TE is lost, Enertech initiates a nonconforming material report (NMR) to identify items that have been accepted using this equipment since the last valid calibration date and to perform an extent of condition evaluation. In addition, the NRC inspection team performed a walk-down of Enertech's calibration laboratory to ensure that equipment located in the M&TE storage area, the M&TE hold area, inspection and test facility 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 Enertech's management and technical staff. The attachment to this inspection report lists the documents reviewed and the staff interviewed by the NRC inspection team.

##### b. Observations and Findings

No findings of significance were identified.

##### c. Conclusion

The NRC inspection team concluded that Enertech established 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 Enertech is implementing its policies and procedures associated with the M&TE program. No findings of significance were identified.

## 5. Identification and Control of Material, Parts, and Components

### a. Inspection Scope

The NRC inspection team reviewed Enertech's policies and implementing procedures that govern the material identification and traceability program to verify compliance with the regulatory requirements of Criterion VIII, "Identification and Control of Material, Parts, and Components," of Appendix B to 10 CFR Part 50. The NRC inspection team performed a walk-down of the following areas at Enertech's facility: receipt and final inspection, fabrication and storage, M&TE laboratory, testing, weld material storage, and nonconforming material storage. The NRC inspection team confirmed that safety-related materials were adequately identified with Enertech's unique heat code number traceable to Enertech's POs and vendor certification reports. The NRC inspection team also observed Enertech's personnel appropriately transferring the material identification and traceability markings during various stages of fabrication.

The NRC inspection team also discussed the material identification and traceability program with Enertech's management and technical staff. The attachment to this inspection report lists the documents reviewed and the staff interviewed by the NRC inspection team.

### b. Observation and Findings

No findings of significance were identified.

### c. Conclusion

The NRC inspection team determined that Enertech established its material identification and traceability program in accordance with the regulatory requirements of Criterion VIII of Appendix B to 10 CFR Part 50. Based on limited sample of documents reviewed, the NRC inspection team also determined that Enertech is implementing its policies and procedures associated with the material identification and traceability program. No findings of significance were identified.

## 6. Test Control

### a. Inspection Scope

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

The NRC inspection team witnessed the functional pressure test of a 2.5 Gallon Accumulator for Southern Nuclear Corporation Vogtle Electric Generating Plant (VEGP). Specifically, the NRC inspection team verified the test was conducted using approved procedures, the production order operation list contained hold points to ensure QC inspector was present during the test, test setup was in accordance with procedures, the test pressure gages were calibrated, and the tester used proper techniques to ensure the test was conducted in accordance with procedure and production order. The NRC inspection team reviewed the set pressure and acceptance tolerances tested during the

functional pressure test to ensure they meet the requirements of customer specifications and accumulator drawing.

The NRC inspection team also observed a hydrostatic pressure test of two safety-related ½ x ½ - inch adapters to be installed in a refurbished actuator for use in Public Service Electric and Gas' (PSE&G) Hope Creek Generation Station. The NRC inspection team ensured the test was conducted using approved procedures, the production order operation list contained hold points to ensure QC inspector was present during the test, and pressure test gages was in calibration. The NRC inspection team reviewed the test results to verify test parameters were documented and meet PSE&G design requirements, and the test was performed by qualified personnel and independently inspected by QC personnel.

The NRC inspection team also assessed indoctrination and training records of test personnel and the QC inspector to verify they were adequately qualified to Enertech's procedures. The NRC inspection team reviewed a sample of completed documentation from various portions of the manufacturing process to verify adherence to established procedures.

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

b. Observations and Findings

No findings of significance were identified.

c. Conclusions

The NRC inspection team concluded that Enertech established 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 and the testing activities observed, the NRC inspection team also determined that Enertech is implementing its policies and procedures associated with the test control program. No findings of significance were identified.

7. Control of Special Processes

a. Inspection Scope

The NRC inspection team reviewed Enertech's policies and implementing procedures that govern the control of special processes 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 in Subsection NCA, Subsection NB, "Class 1 Components," Subsection NC, "Class 2 Components," and Subsection ND, "Class 3 Components," of Section III, Section V, "Nondestructive Examination," and Section IX, "Welding and Brazing Qualification," of the ASME B&PV Code. The NRC inspection team also verified that Enertech's testing personnel were qualified in accordance with the American Society for Nondestructive Testing (ASNT) Recommended Practice SNT-TC-1A, "Personnel Qualification and Certification in Nondestructive Testing."

The NRC inspection team also discussed the special process program with Enertech's management and technical staff. The attachment to this inspection report lists the documents reviewed by the NRC inspection team.

b. Observations and Findings

b.1 Welding

The NRC inspection team reviewed Enertech's welding procedure specification (WPS) and its associated procedure qualification record used during fabrication of a 2.5-gallon accumulator for VEGP, and confirmed that the WPS was qualified in accordance with the requirements of Section III and Section IX of the ASME BP&V Code. The NRC inspection team also reviewed several nuclear travelers for domestic nuclear orders that had documented objective evidence of the revision of the WPS used, weld wire traceability, and quantity used, the welder's initials and date when the welding operation was performed and the QC inspector stamp and date of acceptance of the weld.

The NRC inspection team selected a sample of two welders' performance qualification and their biennial performance continuity records to verify they were qualified to meet the requirements of Section IX of ASME BP&V Code. The welders' performance qualification records indicated the welding technique, material used, the weld position, and material thickness range to which they were qualified.

b.2 Control of Weld Material

The NRC inspection team performed a walk-down of the weld storage area to verify weld materials were controlled to prevent degradation, inadvertent use, or loss of traceability in accordance with Enertech's approved procedures. The NRC inspection team noted that the weld area was kept clean and protected from wind, and moisture. Further, the NRC inspection team assessed whether the weld machine was calibrated within the range of use, using known traceable standards and its calibration frequency was maintained.

The NRC inspection team reviewed documentation associated with the issuance and control of ASME weld material. The NRC inspection team verified that Enertech controlled welding material through use of the weld filler metal issuance log. The correct heat/lot number of the welding material, the welder name, and production order was identified on the weld metal issuance log released by warehouse staff and verified by a QC inspector.

The NRC inspection team reviewed a sample of certified material test reports for the weld filler metal used to verify that the material specifications for physical and chemical properties met the requirements of Section II, "Materials," and Section III of the ASME B&PV Code. The NRC inspection team confirmed the weld wire were procured from approved suppliers that were listed on Enertech's approved supplier list.

### b.3 Nondestructive Examination (NDE)

The NRC inspection team reviewed Enertech's Liquid Penetrant (LP) procedure to verify the procedure was qualified in accordance with the requirements of Article 6, "Liquid Penetrant Examination," of Section V, and Section III of the ASME B&PV Code. The NRC inspection team selected a sample of LP inspection reports for ASME B&PV Section III Code and safety-related components to ensure the examinations and material were properly documented and reviewed by a qualified NDE personnel, using qualified procedures, calibrated equipment.

The NRC inspection team reviewed the visual examination report of pressure-retaining welds performed on the 2.5-gallon accumulator to verify the integrity of the weld was in accordance with the requirements of Section III of the ASME B&PV Code. The NRC inspection team verified that the NDE instrumentation used during visual, and LP examination were identified with a calibration sticker and verified its calibration record were current, within the range and frequency maintained. In addition, the NRC inspection team verified that the NDE consumable materials used for the LP process which includes penetrant, developer, and cleaner were from the same manufacturer, and confirmed the material test reports specified the halogen and sulfur contents were below 1% by weight in accordance with the requirements of Section V, Article 6, of the ASME B&PV Code.

### b.4 Qualification and Training Records of Welders and NDE Personnel

The NRC inspection team selected a sample of two welders' performance qualification and their biennial performance continuity records to verify they were qualified to meet the requirements of Section III and Section IX of the ASME BP&V Code. The welders' performance qualification records indicated the welding technique, material used, the weld position, and material thickness range they were qualified to.

The NRC inspection team reviewed Enertech's procedure for the certification and qualification of NDE personnel and confirmed the procedure was consistent with the latest revision of the ASNT Recommended Practice SNT-TC-1A and Section III of the ASME B&PV Code. The NRC inspection team reviewed training and qualification records for a Level II NDE personnel qualified to non-aqueous LP method and confirmed that his records reflect the individual was trained and qualified in accordance with Enertech's procedure and Section III of the ASME BP&V Code. The NRC inspection team also verified that NDE personnel annual vision and acuity records were current.

### c. Conclusions

The NRC inspection team concluded that Enertech 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 Enertech is implementing its policies and procedures associated with the control of special processes program. No findings of significance were identified.

## 8. Nonconforming Materials, Parts, or Components

### a. Inspection Scope

The NRC inspection team reviewed the policies and procedures that govern the implementation of Enertech's non-conformance control program to verify compliance with the regulatory requirements in Criterion XV, "Nonconforming Materials, Parts or Components," of Appendix B to 10 CFR Part 50.

The NRC inspection team reviewed a sample of recent NMRs originating in various phases of the operations including receipt inspection, fabrication/assembly, and final inspection, to confirm adequate implementation of the process in accordance with the vendor's implementing procedures. The sample included issues that were resolved through use as is, rejection, and repair activities. The NRC inspection team verified that nonconforming conditions were adequately documented, reviewed, tracked, and dispositioned in accordance with the implementing procedures. For NMRs that were dispositioned as use as is, the NRC inspection team confirmed the technical justifications were documented to verify the acceptability of the nonconforming items.

The NRC inspection team reviewed the return material authorization (RMA) process and verified that RMAs that contained defective materials were adequately issued to an NMR for further evaluation and disposition.

The NRC inspection team also discussed the nonconforming material, parts, or components program with Enertech's management and technical staff. The attachment to this inspection report lists the documents reviewed by the NRC inspection team.

### b. Observations and Findings

No findings of significance were identified.

### c. Conclusion

The NRC inspection team concluded that Enertech established its program for non-conforming materials, parts, or components in accordance with the regulatory requirements of Criterion XV of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that Enertech is adequately implementing its policies and procedures associated with the non-conformance control program. No findings of significance were identified.

## 9. Corrective Action

### a. Inspection Scope

The NRC inspection team reviewed the policies and procedures that govern the implementation of Enertech's corrective action program to verify compliance with the regulatory requirements in Criterion XVI, "Corrective Action" of Appendix B to 10 CFR Part 50.

The NRC inspection team also reviewed a sample of CARs from the CAR log to ensure that conditions adverse to quality were promptly identified and corrected. The NRC

inspection team verified the CARs provided: (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, as applicable; (3) a description of the status of the corrective actions; (4) appropriate follow-up actions taken to verify timely and effective implementation of the corrective actions; and (5) provide for a formal action to determine if an issue is may require further evaluation in accordance with the vendor's 10 CFR Part 21 program.

The NRC inspection team reviewed the QA annual reports for 2017 and 2018. The reports contain assessment of internal and external CARS, NMRs, audit findings (internal and external) and supplier audits as well as customer complaints, as well as, evaluates if any trends are indicative of significant conditions adverse to quality including programmatic weaknesses.

In addition, the NRC inspection team reviewed corrective actions for previous NRC inspection, test, analysis, and acceptance criteria (ITAAC) related findings to confirm adequate implementation of those corrective actions. A detailed review of these CARs is described in Section 10, "Follow-Up on ITAAC-related Findings," of this report.

The NRC inspection team discussed the corrective action program with Enertech'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 Enertech established its program for corrective actions in accordance with the regulatory requirements of 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 Enertech is adequately implementing its policies and procedures associated with the corrective action program. No findings of significance were identified.

10. Follow-Up on ITAAC-Related Findings

a. Inspection Scope

The NRC inspection team reviewed the docketed information associated with Inspection Report (IR) 99901377/2012-201, dated November 2, 2012, that contained Notice of Nonconformance (NON) 99901377/2012-201-02 and NON 99901377/2012-201-03, that were material to the acceptance criteria of the ITAAC. Based on that information, the NRC inspection team reviewed the corrective actions associated with each of the NON's to confirm that Enertech had adequately identified, evaluated, implemented, and documented the actions taken to resolve those non-conformances.

b. Observations and Findings

b.1 Corrective Action Associated with NON 99901377/2012-201-02

The NRC issued a NON 99901377/2012-201-02, for Enertech's failure to adequately implement a commercial-grade dedication program to review the suitability of the application of commercially-procured calibration services at Utah State University (USU) and the verification of an ERV-Z 8-inch nozzle check valve non-pressure boundary items and materials that are essential to the safety-related functions of structures, systems, and components. In addition, the technical evaluation performed as part of the dedication of commercial-grade items did not include a documented basis for the sample testing population for items from commercial suppliers where lot/batch homogeneity had not been verified.

In a letter dated November 30, 2012 Agencywide Document Access and Management System (ADAMS) Accession No. ML13015A067, Enertech described its corrective actions to address the issues identified in the NON documented in IR 99901377/2012-201.

The NRC inspection team reviewed Enertech's follow-up actions in response to NON 99901377/2012-201-02. Enertech initiated CAR Nos. 2032 and 2034. CAR No. 2032 documents Enertech's corrective action taken to address Enertech's failure to include in the technical evaluation performed as part of the dedication of commercial-grade items, a documented basis for the sample testing population for items from commercial suppliers where lot/batch homogeneity had not been verified. Enertech revised the following documents as part of the corrective actions taken: (1) EOP 3140, "Procedure for the Dedication of Commercial-Grade Items/Services," (2) MA24560, "CGS Evaluation – Performance Testing Services," (3) MA24945, "CGI EVAL. NCV DIFFUSER," (4) MA24945, "CGI EVAL. NCV DIFFUSER," (5) MA24946, "CGI EVAL. RETAINING RING," and trained Enertech engineering and QA engineers to these revised procedures. The NRC inspection team reviewed CAR No. 2032 and the revised documents and confirmed Enertech included guidance for performance technical justification to address the acceptance of all identified material specification identified on a commercial supplier's material certification reports which also included documented basis for the sample testing population of the items received from commercial suppliers for which lot/batch homogeneity cannot be verified. Further, the NRC inspection team reviewed the training records for all engineering, and QA staff related to the CAR No. 2032, and supporting revised documents. The NRC inspection team concluded that Enertech adequately documented the cause of the condition, the corrective action taken, and the QA acceptance of the responses.

CAR No. 2034 documents Enertech's corrective action taken to address Enertech's failure to adequately dedicate an ERV-Z 8-inch nozzle check valve test activities conducted at USU. Specifically, in the commercial-grade survey, Enertech failed to verify the calibration quality of the instruments used during the ASME QME-1 functional flow tests to identify and record safety-related test data. Enertech stated that it took following actions: (1) Revised EOP 8185, "Procedure for Commercial-Grade Survey," to include guidance for Enertech's survey teams for evaluating commercial-grade calibration suppliers that have an accreditation



by accrediting bodies recognized by the International Laboratory Accreditation Cooperation Mutual Recognition Arrangement for placement on the Approved Supplier List; (2) Prepared Calibration Verification Report dated December 27, 2012, to confirm the Inspection and Verification reports of calibration equipment used by Utah Water Research Laboratory during USU testing to be accurate; (3) revised MA24560, "CGS Evaluation – Performance Testing Services," to document how to establish reasonable assurance; and (4) performed training of Engineering and QA staff to CAR 2034 and revised procedures. The NRC inspection reviewed CAR No. 2034 and reviewed the supporting documents and confirmed Enertech took adequate actions to assure calibration of M&TE by a commercial-grade calibration services are adequately controlled. Based on this review, the NRC inspection team determined Enertech adequately documented the cause of the condition, the corrective action taken, and the QA acceptance of the responses.

**b.2 Corrective Action Associated with NON 99901377/2012-201-03**

The NRC issued a NON 99901377/2012-201-03, for Enertech's failure to establish a test program to ensure that it had identified and performed all testing necessary to demonstrate that the ERV-Z 8-inch nozzle check valve will perform satisfactorily in service. Specifically, Enertech's test program did not identify and perform qualification testing of the valve to demonstrate operability under all ASME QME-1-2007 specified operating and design basis conditions.

The NRC inspection team reviewed Enertech's follow-up actions in response to NON 99901377/2012-201-03, including CAR No. 2033 and the associated documents that support Enertech's corrective actions taken to address the NON. Specifically, the NRC inspection team reviewed and verified that Enertech had revised and/or developed documents that includes:

- a. Enertech plan MA22874 "Equipment Qualification Plan for Enertech 8-inch ANSI Class 1707 Type ERV-Z N.O. Nozzle Check Valve," was revised to include the additional high-pressure reverse flow test requirements and parameters in the qualification plan defined in Westinghouse Electric Corporation's valve specification APP-PV02-Z0D-186, "AP 1000 Valve Data Sheet," Revision 3;
- b. Enertech procedure MA22989 "Equipment Qualification Procedure for Enertech 8-inch – Class 1707 Type ERV-Z Nozzle Check Valve," was revised to include high pressure impact test of the ERZ-8-inch check valve;
- c. Developed MAA 22989, "Addendum to the Equipment Qualification Procedure for Enertech 8-inch Class 1707 Type ERV-Z Nozzle Check Valve Prepared for Westinghouse Electric Purchase Order No. 4500450302, Enertech Project 960029," to include rapid reverse flow test requirements for valve qualification to meet the requirements of ASME QME-2007 standard;
- d. Revised MA22878, "ASME QME-2007 Functional Qualification Report for Enertech 8-inch Class 1707 ERV-Z Nozzle Check Valve," to confirm the functional qualification of ERZ-nozzle check valve complies with the requirements of ASME QME-1-2007 Edition; and

- e. Performed training of all engineering, contract administrators and QA staff related to the CAR No. 2032 and revised documents.

Based on review, the NRC inspection team determined Enertech adequately documented the cause of the condition, the corrective action taken, and the QA acceptance of the responses. NONs 99901377/2012-201-02 and 99901377/2012-201-03 are considered closed and no additional inspection follow-up is required to verify completion/adequacy of these corrective actions. No findings of significance were identified.

c. Conclusion

The NRC inspection team concluded that Enertech has adequately implemented its program for corrective actions associated with NON 99901377/2012-201-02 and NON 99901377/2012-201-03, described in NRC inspection report No. 99901377/2012-201, dated November 2, 2012. Based on the limited sample of documents reviewed, the NRC inspection team determined that Enertech has taken adequate corrective actions to resolve those non-conforming conditions identified in the subject NONs. No findings of significance were identified.

11. Entrance and Exit Meetings

On July 22, 2019, the NRC inspection team discussed the scope of the inspection with Mr. Kevin McNown, General Manager of Enertech, and other members of Enertech management and technical staff. On July 26, 2019, the NRC inspection team presented the inspection results and observations during an exit meeting with Mr. Kevin McNown, General Manager of Enertech, and other members of Enertech 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.

1. ENTRANCE/EXIT MEETING ATTENDEES AND PERSONS INTERVIEWED

Name	Title	Affiliation	Entrance	Exit	Interviewed
Ara Gharibhanian	Assembler	Enertech			X
Ararat Torosyan	VP Engineering	Enertech	X	X	X
Cezar Oborn	Field Technician/Test Supervisor	Enertech			X
Derek Bounda	QC Inspector	Enertech			X
Emil Paulesco	QC Inspector/Calibration Technician	Enertech			X
Gary Amas	Welder	Enertech			X
John Pyle	Quality Control (QC) Inspector	Enertech			X
Kevin McNown	General Manager (GM)	Enertech	X	X	
Kurt Mitchell	Vice President (VP)/GM Nuclear Division	Enertech	X	X	
Loretta Anaya	QA Manager	Enertech	X	X	X
Manoli Shah	Sr. QA Engineer	Enertech	X	X	
Patrick Schaller	Project Engineer	Enertech	X	X	
Robby Harryman	Welder/Assembler	Enertech			X
Rosalie Nava	Quality Assurance (QA) Director	Enertech	X	X	X
Sal Acosta	Nondestructive Examination Level II Technician	Enertech			X
Scott Lustyk	Operations Director	Enertech	X	X	
Steve Martinez	Tester	Enertech			X
Tsolag Apelian	Principle Engineer	Enertech	X	X	

<b>Name</b>	<b>Title</b>	<b>Affiliation</b>	<b>Entrance</b>	<b>Exit</b>	<b>Interviewed</b>
Greg Galletti	Team Leader	NRC	X	X	
Jonathan Ortega-Luciano	Inspector	NRC	X	X	
Yamir Diaz-Castillo	Inspector	NRC	X	X	
Raju Patel	Inspector	NRC	X	X	
Kerri Kavanagh	Branch Chief	NRC		X	

## 2. INSPECTION PROCEDURES USED

- Inspection Procedure (IP) 36100, "Inspection of 10 CFR Part 21 and Programs for Reporting Defects and Noncompliance," dated May 16, 2019
- IP 43002, "Routine Inspections of Nuclear Vendors," dated January 27, 2017
- IP 43004, "Inspection of Commercial-Grade Dedication Programs," dated January 27, 2017

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

<b>Item Number</b>	<b>Status</b>	<b>Type</b>	<b>Description</b>
9901377/2019-201-01	OPEN	NON	Criterion VII
99901377/2012-201-02	CLOSED	NON	Criterion III
99901377/2012-201-03	CLOSED	NON	Criterion XI

## 4. DOCUMENTS REVIEWED

### Policies and Procedures

- Curtis-Wright Nuclear Division Brea Operations Quality Assurance Manual Fifth Edition, Revision 1, dated May 23, 2018
- Curtis-Wright Nuclear Division Brea Operations Approved Suppliers List
- Enertech Operating Procedure (EOP)-2130, "Return Material Authorization," Revision Q, dated December 21, 2015

- EOP-3130, "Procedure for Determining Part Safety Classification," Revision N, dated July 16, 2019
- EOP-3135, "Process Control Procedures and Engineering Instructions," Revision 1, dated July 16, 2019
- EOP-3140, "Dedication of Commercial Grade Items and Services," Revision AO, dated July 17, 2019
- EOP-3170, "Design Verification Procedure," Revision V, dated July 17, 2019
- EOP 3175, "Procedure for Qualification of Certifying Engineers," Revision P, dated June 14, 2019
- EOP-3145, "Equivalency Evaluation of Alternative Replacement or Modifications to Safety Related Items," Revision K, dated July 17, 2019
- EOP 3220, "Classifying Special Processes," Revision A, dated July 17, 2019
- EOP-3310, "The Preparation of the Routing," Revision V, dated July 17, 2019
- EOP-3320, "Creating Items (Stock) Numbers & Bill of Materials," Revision L, dated July 17, 2019
- EOP-3330, "Preparing and Controlling Engineering MIS Changes Notices," Revision P, dated July 17, 2019
- EOP 4501, "Qualification & Certification of NDE Personnel, SNT-TC-1A," Revision K, dated September 15, 2017
- EOP 5002, "Filler Metal Issue and Control," Revision I, dated December 14, 2016
- EOP 5005, "Procedure for Welding and Soldering Qualifications," Revision H, dated February 17, 2017
- EOP-6005, "Receipt of Material," Revision U, dated July 2, 2019
- EOP 6007, "Handling & Storage of ASME Code, Non-Code Material, O-Rings and Seals," Revision L, dated July 26, 2012
- EOP 6012, "Issuance of Material," Revision L, dated September 13, 2017
- EOP 6016, "Procedure for Processing Production Orders," Revision U, dated May 3, 2016
- EOP 6100, "Procedure for Procuring and Storing Elastomeric Seals," Revision L, dated May 5, 2017
- EOP 8020, "Indoctrination and Training of Personnel Affecting Quality Activities," Revision S, dated February 17, 2017
- EOP-8021, "Qualification and Certification of Auditors and Lead Auditors," Revision R, dated February 2, 2017
- EOP 8023, "Procedure for the Qualification of Test and Inspection Personnel," Revision U, dated February 17, 2017
- EOP-8072, "Procedure for Receiving Inspection," Revision AB, dated February 17, 2017
- EOP-8074, "Procedure for Source Inspection Record," Revision O, dated February 17, 2017
- EOP 8076, "Procedure for the Marking & Traceability of Items," Revision Q, dated February 17, 2017
- EOP 8101, "In-Process, Assembly, & Final Inspection of Items," Revision V, dated April 26, 2019
- EOP-8120, "Control of Measuring and Test Equipment," Revision U, dated February 17, 2017
- EOP-8150 Revision AE "Nonconforming Material Reports," dated April 26, 2019
- EOP-8180, "Audit Procedure," Revision Y, dated December 27, 2018
- EOP 8185, "Procedure for Commercial Grade Survey," Revision K, dated February 17, 2017
- EOP-8200, "Reporting requirements concerning Defects & Noncompliance per 10CFR Part 21," Revision V, dated December 13, 2016
- EOP-8403, "Procedure for Suspect/Counterfeit Items," Revision D, dated December 12, 2013

- Engineering Process Control Procedure No. PA 97695, "Nozzle Check Valve Thickness Measurement Procedure," Revision 0, dated May 26, 1995
- "Standard for the Identification of materials by the XRF Alloy Analyzer Niton XL3T-800 & XL3T-80," Revision E, dated November 12, 2018
- MA 21330, "Standard Pressure Test Procedure," Revision A, dated February 19, 2019
- MA 21662, "Liquid Penetrant Procedure, Revision F, dated November 12, 2014
- MA 22989, "Equipment Qualification Procedure for Enertech 8-inch – Class 1707 Type ERV-Z Nozzle Check Valve," Revision B dated April 30, 2012
- MA 22989, "Equipment Qualification Procedure for Enertech 8-inch – Class 1707 Type ERV-Z Nozzle Check Valve," Revision C dated July 25, 2017
- MA 22874, "Equipment Qualification Plan for Enertech 8-inch ANSI Class 1707 Type ERV-Z N.O. Nozzle Check Valve," Revision C, dated December 11, 2012
- MA 24560, "CGS Evaluation – Performance Testing Services," Revision A, dated April 30, 2012
- PA86414, "Acceptance Test Procedure," Revision C, dated August 19, 1989
- PA94327, "Enertech Valve Operator Refurbishment Procedure," Revision C, dated August 19, 2016
- PA94264, "Inspection Procedure Accumulator/Gas Bottles, Revision C, dated January 30, 2017
- PA98063, "Welding Procedure Specification – Base Metal P-1 to P-8," Revision D, dated September 5, 1996
- PA98064, "Welding Procedure Qualification Record – GTAW Manual," Revision 0, dated March 20, 1996
- PD98097, "Visual Examination Procedure for Welding," Revision D, dated July 6, 2011
- PA98159, "Addendum to Enertech Welding Procedure Specification," dated January 16, 1012

#### Commercial-Grade Dedication (CGI)

- CGI A3325S, "CGI Dedication Procedure for O-Ring, Metallic," Revision G, dated May 18, 2016
- CGI C4668S, "CGI Dedication Procedure for Spring, Helical 2", Order No. 128775," Revision B, dated May 16, 2019
- CGI C9147S, "CGI Dedication Procedure for T-Seal, Piston, Viton, Order No. 128679-1," Revision A, dated May 13, 2019
- CGI F2125S, "CGI Dedication Procedure for GFH25 Filter Regulator, Order No. 128882"
- CGI MA21720, "CGI Evaluation – T-Seal," Revision D, dated May 25, 2016
- CGI MA21727, "CGI Evaluation – Seals, Metallic," Revision B, dated March 21, 2017
- CGI MA22308, "CGI Evaluation – Helical Springs," Revision J, dated February 5, 2019
- CGI MA24560, "CGS Evaluation for Performance Testing Services," Revision A, dated May 4, 2012
- Survey Report of Supplier ACA002, dated May 30, 2017
- Survey Report of Supplier DEF002, dated June 28, 2019
- Survey Report of Supplier EML001, dated October 10, 2018
- Survey Report of Supplier GOU002, dated January 20, 2017
- Survey Report of Supplier ITT011, dated October 25, 2017
- Survey Report Supplier WYM001, dated May 10, 2019

### Corrective Action Reports (CAR)

- CAR No. 2167
- CAR No. 2168
- CAR No. 2169
- CAR No. 2176
- CAR No. 2167
- CAR No. 2168
- CAR No. 2169
- CAR No. 2176
- CAR No. 2180
- CAR No. 2181
- CAR No. 2182
- CAR No. 2183

### Purchase Orders (PO)

- PO No. 128882 for IEEE Qualified Airpak Filter Regulator, dated May 22, 2019
- PO No. 00670527 from Exelon to Curtiss Wright Flow Control Corporation for a Seal, Piston, Viton with Phenolic or Nylatron Back-up Rings, dated October 19, 2018
- PO No. 5197971 from TVA to Curtiss Wright Flow Control Corporation for Ring, Typical, QA 3, Steel, Revision 0, dated May 17, 2019
- PO No. 00686542 from Exelon to Curtiss Wright Flow Control Corporation for a Spring, Helical 2", dated March 21, 2019
- PO No. 213716 from Enertech to Supplier ACA002, dated January 14, 2019
- PO No. 214211-1 from Enertech to Supplier DEF002, dated July 23, 2019
- PO No. 211778 from Enertech to Supplier WYM001, dated May 9, 2017
- PO No. 211701 from Enertech to Supplier WYM001, dated April 3, 2017
- PO No. 213473-1 for gaskets, adhesive, and a collar transition plate, dated October 12, 2018
- PO No. 127465-2 for valve casting bodies and valve casting discs, dated March 16, 2018
- PO No. 214071 for an end cap gasket, dated May 6, 2019
- PO No. 213743-1 for material testing services, dated January 31, 2019
- PO No. 127930-2 for valve assembly services, dated June 14, 2018
- PO No. 211506 for flow transmitters, dated January 10, 2017
- PO No. 127590-4 for valve assembly services, dated April 20, 2018
- PO No. 127709-1 for valve assembly services, dated May 12, 2018
- PO No. 128906-1 for machining services, dated May 30, 2019
- PO No. 127602-2 for machining services, dated April 24, 2018
- PO No. 128618-1 for a casting disc, dated February 4, 2019
- PO No. 128842 for machining services, dated May 3, 2019
- PO No. 127814-1 for a casting disc, dated May 30, 2018
- PO No. 212209-2 for O-rings, dated October 6, 2017
- PO No. 213147-1 for machining services, dated July 7, 2018
- PO No. 125891-1 for a center flange gasket, dated November 18, 2016
- PO No. 128739 for a tube forging, dated March 20, 2019
- PO No. 128588 for weld repairs, dated January 24, 2019
- PO No. 12618402 for testing services, dated February 24, 2017

- PO No. 214188 for calibration services, dated June 19, 2019
- PO No. 213504 for calibration services, dated October 24, 2018
- PO No. 214075 for calibration services, dated May 7, 2019
- PO No. 213695 for calibration services, dated January 7, 2019
- PO No. 127298 for testing services, dated February 9, 2018

#### Audit Reports

- Audit report for a supplier of casting products, weld repair, non-destructive examination (NDE), vendor code number (VCN) COM032, dated June 23, 2017
- Audit report for a supplier of machining services, VCN BAL003, dated April 5, 2018
- Audit report for a supplier of fitting services, VCN HOK002, dated February 2, 2018
- Audit report for a supplier of ferrous and non-ferrous casting, VCN KAR002, dated January 21, 201
- Audit report for a supplier of machining, assembly, and testing services, VCN MAR023, dated October 3, 2017
- Audit report for a supplier of machining services for ferrous and non-ferrous material, VCN M&R001, dated August 23, 2018
- Audit report for a supplier of mechanical and chemical testing services, VCN MIC026, dated February 8, 2018
- Audit report for a supplier of machining, assembly, and testing services, VCN NOR008, dated July 7, 2017
- Audit report for a supplier of NDE, VCN SUP011, dated January 3, 2018
- Audit report for a supplier of source material, machining services, and NDE, VCN ZHH001, dated May 30, 2017
- Audit report for a supplier of heat exchangers, VCN ALF004, dated December 12, 2018
- Audit report for a supplier of source material and ferrous castings, VCN ANU005, dated January 4, 2018
- Audit report for a supplier of mechanical sealing devices, VCN APS001, dated April 19, 2017
- Audit report for a supplier of specialty welding services, VCN ELE006, dated October 28, 2016
- Audit report for a supplier of material testing, VCN MMA001, dated August 9, 2017
- Audit report for a supplier of expanding sealing devices, VCN EST002, dated December 19, 2016
- Audit report for a supplier of flow meters, VCN FLU008, dated March 26, 2018
- Audit report for a supplier of testing services, VCN IMR002, dated May 3, 2019
- Audit report for a supplier of testing and NDE services, VCN MMR001, dated June 6, 2017
- Audit report for a supplier of machining, assembly, and testing services, VCN NJB001, dated April 15, 2019
- Audit report for a supplier of testing services, VCN NWS001, dated April 27, 2018
- Audit report for a supplier of calibration services, VCN GAU001, dated April 3, 2018
- Audit report for a supplier of calibration services, VCN DUL002, dated June 27, 2018
- Audit report for a supplier of calibration services, VCN PRE004, dated June 8, 2018

#### Calibration Records

- Certificate of Calibration for a 0 to 12-inch digital caliper, dated July 31, 2018
- Certificate of Calibration for an outside spring caliper, dated August 1, 2018



- Certificate of Calibration for a plug gage thread 3/8-16 UNC-2B, dated November 18, 2015
- Certificate of Calibration for a thermometer, dated August 19, 2011
- Certificate of Calibration for a thermometer-glass, dated September 10, 2015
- Certificate of Calibration for a process meter, dated June 8, 2012
- Certificate of Calibration for an X-R-F gun, dated October 16, 2018
- Certificate of Calibration for a gage block set of 36 pieces, dated February 1, 2019
- Certificate of Calibration for a gage block-long square 8-inch, dated September 12, 2018

#### Nonconforming Material Report (NMR)

- NMR No. 10327, "Plug Gage Thread 3/8-16 UNC-2B," dated November 21, 2016
- NMR No. 9942, "Thermometer Standard," dated September 14, 2015
- NMR No. 1591, "Digital Process Meter," dated August 10, 2012

#### Corrective Action Requests (CARs) Opened During the NRC Inspection

- 2177 - On the failure to adequately qualify 3 calibration suppliers and 1 forging supplier.
- 2178 - Failure to open CAR or NMR when initiating a Part 21 evaluation
- 2179 - (1) On the failure to impose Appendix B to 10 CFR Part 50 and 10 CFR Part 21 on two safety-related POs for an elbow forging and a disc casting, and (2) on the failure to verify commercial suppliers qualified as Material Organizations were adequately implementing 10 CFR Part 21 programs.

#### Design Reports and Drawings

- Enertech design report MA22878, "ASME QME-1-2007 Qualification Report for Enertech 8-inch1700 pounds ERV-Z Nozzle Check Valve," Revision C, dated July 25, 2017
- Design report MA22878, "ASME QME-1-2007 Qualification Report for Enertech 8-inch1700 pounds ERV-Z Nozzle Check Valve," Revision B, dated April 19, 2013
- Design report MA22878, "ASME QME-1-2007 Qualification Report for Enertech 8-inch1700 pounds ERV-Z Nozzle Check Valve," Revision A, dated March 27, 2013
- Design report MA22878, "ASME QME-1-2007 Qualification Report for Enertech 8-inch1700 pounds ERV-Z Nozzle Check Valve," Revision 0, dated February 15, 2013
- Design report MA22867, "Design and Seismic Analysis Report for Enertech 8-inch – ANSI 1707 Type ERV-Z Nozzle Check Valve," Revision J, certified by RPE on April 17, 2013 to WEC design specification APP-PV03-Z0-001, Rev. 8 and PO 4500322510
- Drawing PD 86008, "Hydraulic Schematic Valve Operator," Revision E, dated June 3, 1985, released on July 2, 2019, for Project No. 520372
- Drawing PD 86009, "Electrical Schematic Valve Operator," Revision E, dated June 3, 1985, released on July 2, 2019, for Project No. 520372
- Drawing PF 9341, "Valve Operator Assembly," Revision C, dated December 22, 1990, released for Project No. 520372 on July 2, 2019
- Drawing No. MD32530, "Body, 6", Class900, DRV-Z Weld Overlay," Revision B

#### Training and Qualification Records

- Enertech's Inspection and Test Personnel Qualification Certification record for Senior Quality Control Inspector Stamp No. 16, dated April 26, 2019, with annual eye examination dated January 7, 2019, to EOP 8023 procedure

- Enertech's Annual Evaluation for Qualified Inspector for Hydraulic assembly and Shop Technician performed on December 28, 2018, due December 28, 2019
- Inspection and Test Personnel Qualification Certification record for Senior Quality Control Inspector Stamp No. dated July 15, 2017 due July 15, 2020, with annual eye examination dated January 7, 2019, to EOP 8023 procedure and Annual Evaluation performed on April 26, 2019
- Inspection and Test Personnel Qualification Certification record for Lead Quality Control Inspector Stamp No. dated April 26, 2019, due April 26, 2022, with annual eye examination dated January 9, 2019, to EOP 8023 procedure and Annual Evaluation performed on April 26, 2019
- Enertech NDE Level III Appointment Letter dated January 17, 2019, appointing Level III services for NDE methods Radiography, Ultrasonic Examination, Magnetic Particle Examination and Liquid Penetrant Examination
- Enertech's Inspection and Test Personnel Qualification Certification record for NDT Examiner, Level II / Sr. Quality Control Inspector Stamp No. 5, dated April 25, 2019, with annual eye examination dated January 10, 2019, to EOP 4501 and EOP 8023 procedures
- Enertech's Personnel Qualification and Certification record for Liquid Penetrant Level II Examiner Stamp No. 5, certified on March 19, 2018, expiration on March 19, 2023 certified to EOP 4501, ASNT-TC-1A, and ASME Section III NX5520, with examination records certified by Level III on March 13, 2018
- Enertech contractor VCN ST0001 Level III NDE Examiner qualification record dated March 2017, expires on March 2022, qualified by American Society for Nondestructive Testing, Inc., in Magnetic Particle, Liquid Penetrant, Radiography and Ultrasonic process
- Enertech Qualification and Certification of Inspection and Test Personnel for Field Service Technician and Field Service Quality Control Inspector certified by QA Director on October 15, 2018, due October 15, 2021
- Enertech Qualification and Certification of Inspection and Test Personnel for Hydraulic Assembly and Shop Technician certified by QA Director on March 15, 2017, due December 28, 2019
- Enertech Certification of Eye Examination for Assembly and Shop Technician dated January 9, 2019
- Enertech Annual Stamp Verification Log dated July 2019, for QCI and quality assurance engineers
- Enertech Annual Evaluation for Qualified Inspector, Test and Audit Personnel dated April 26, 2019
- Enertech Certification of Eye Examination for Field Service Technician dated December 27, 2018
- Enertech's Memo dated September 19, 2016 "Certified RPEs," qualifying RPE by General Manager. Registered Professional Engineer Self-Review 2018, dated May 5, 2018, certified as Mechanical Engineer in the state of California expires on September 30, 2019
- Enertech' Welder Performance Continuity Record for welder Id No. EW-2 for 2019, in Gas Tungsten Arc Welding (GTAW) and GMAW process
- Enertech' Welder Performance Continuity Record for welder Id No. EW-4 for 2019, in Gas Tungsten Arc Welding (GTAW) and GMAW process
- Enertech's Welder Performance Qualification Record (WPQR) for EW-2, dated January 23, 2001, qualified to WPS MA20578, Revision 0, in GMAW process of P8 to P8 base metals in 1G position to ASME Section III and IX requirements
- WPQR for EW-2, dated January 29, 2001, qualified to WPS PA98159 Revision B, in GTAW process welding P8 to P8 base metals in 1G position to ASME Section III and IX requirements

- WPQR for EW-2, dated July 2, 2013, qualified to WPS MA20727 Revision 0, in GTAW process for hardfacing P1 to P8 base metals in 1G position to ASME Section IX requirements
- WPQR for EW-2, dated May 21, 2018, qualified to WPS PA98159 Revision 0, in GTAW process for groove weld of P1 to P8 base metals in 6G position to ASME Section III and IX requirements
- WPQR for EW-4, dated November 2, 2012, qualified to WPS MA24723 in GTAW process for machine weld of P1 to P1 base metal in 6G position to ASME Section III and IX requirements
- WPQR for EW-4 dated July 18, 2013, qualified to WPS MA24742 in Pulse Arc Welding for machine weld of P6 to P6 base metal in 1G position to ASME Section III and IX requirements

#### Certification of Material Test Report, Certification of Calibration, Inspection Reports

- Enertech vendor VCN WEL007 Certificate of Conformance dated October 14, 2016
- Enertech vendor VCN WEL007 Certificate of Material Test Report (CMTR) dated August 29, 2012
- Enertech CMTR dated September 14, 2018
- Enertech VCN ENT003 CMTR No. 38178C dated February 18, 2013
- Enertech Nozzle Check Valve Wall Thickness Report dated January 23, 2019
- Enertech Nozzle Check Valve Wall Thickness Report dated October 3, 2018
- Enertech Hydrostatic and Seat Leakage Test Report dated May 3, 2019
- Enertech Hydrostatic and Seat Leakage Test Report dated April 8, 2019
- Enertech POP-A-Plug – P2 Test Report, dated August 17, 2018
- Enertech Leakage test data report dated July 19, 2019
- Enertech Hydrostatic Test data report dated July 24, 2019
- Enertech Functional Pressure Data report dated July 24, 2019
- Enertech Hydrostatic and Leakage test report dated April 9, 2018
- Enertech Calibration Certification dated July 9, 2019 for pressure gage
- Enertech Calibration Certification dated July 19, 2019 for stop watch
- Batch Certification dated June 2, 2015, for Visible Penetrant
- Batch Certification dated February 21, 2017, for Cleaner/Remover
- Batch Certification dated April 4, 2017, for Nonaqueous Developer
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#### Welding and Nondestructive Examination Reports

- Enertech Visual Inspection Record for one 4-inch Class 900 Disc, dated October 26, 2018,
- Enertech Liquid Penetrant Examination Report dated October 26, 2018
- Enertech Visual Examination Test Report for Stop Tube dated July 22, 2019

#### Miscellaneous

- Enertech data package for Exelon Generation – Clinton Nuclear Station PO 00632383
- Enertech data package for Entergy Operation – Arkansas Nuclear One PO 10553119
- Enertech data package for Dominion Virginia Power – Surry Power Station PO 4500469315
- Enertech data package for Wolf Creek Nuclear Power Plant PO 781180
- Enertech ASME Form N-2 “Certificate Holder’s Data Report for Nuclear Pumps and Valves,” for Disc, dated November 21, 2018

- Enertech ASME NPV-1, "Certificate Holder's Data Report for Nuclear Pumps and Valves," dated June 7, 2018
- Enertech MA22878, "ASME QME-1-2007 Functional Qualification Report for Enertech 8-inch 1700 pounds ERV-Z Nozzle Check Valve," Revision C, dated July 25, 2017
- Enertech Engineering Change Order (ECO) No. 5-21546, "CGI EVAL. NCV RETAINING RING," requested date November 20, 2012
- ECO No. 5-21537, "CGI EVAL- NCV DIFFUSER," request date November 15, 2012
- ECO No. 5-21687, "CGI EVAL-PERF. TESTING SERVICES," request date December 20, 2012
- ECO No. 5-21663, "CGI EVAL. RETAINING RING," requested date December 18, 2012
- Enertech Commercial-Grade Item (CGI) Technical Evaluation MA24560, "Performance Testing Services," Revision A, dated December 27, 2012
- CGI Technical Evaluation MA24945, "Diffuser, Passive N.O. Nozzle Check Valve," Revision A, dated November 16, 2012
- CGI Technical Evaluation MA24946, "Retaining Ring, Passive N.O. Nozzle Check Valve," Revision B, dated December 21, 2012
- Enertech Production Order 635668, "Item Number D7468N—Valve, Check; 8-1500," dated April 18, 2012
- Enertech Welder Performance Qualification Record MA21647, Revision 0, for Welder ID EW-2
- Enertech Liquid Penetrant Procedure MA26539 Revision F, demonstrated to the Authorized Nuclear Inspector documented on Hartford Steam Boiler Global Standards Daily Inspection Record dated November 13, 2012
- Inspection Record Sheet for a valve body, 6-inch, Class 900, DRV-Z weld overlay

#### ITAAC-related Finding Review Documentation

- Letter from Enertech to the NRC dated, November 30, 2012, (ADAMS No. ML13015A067)
- Letter from NRC to Enertech dated, June 10, 2016, (ADAMS No. ML12356A154)
- Letter from Enertech to the NRC dated, June 29, 2016, (ADAMS No. ML16202A338)