

July 29, 2013

Mr. Kurt Mitchell, General Manager Operations
Curtiss-Wright Flow Control Company
QualTech NP Division
4600 East Tech Drive
Cincinnati, OH 45245

SUBJECT: NUCLEAR REGULATORY COMMISSION INSPECTION REPORT
NO. 99901414/2013-201 AND NOTICE OF NONCONFORMANCE

Dear Mr. Mitchell:

From June 17 to June 21, 2013, the U.S. Nuclear Regulatory Commission (NRC) staff conducted an inspection at the QualTech NP (QualTech), facility in Cincinnati, OH. The purpose of the limited-scope inspection was to assess QualTech's compliance with the provisions of selected portions of Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," and 10 CFR Part 21, "Reporting of Defects and Noncompliance."

This inspection specifically evaluated QualTech's seismic and environmental qualification testing activities, commercial grade dedication (CGD) activities, and equipment airlock fabrication activities for the U.S. AP1000 fleet, and for other operating reactor plants. The enclosed report presents the results of the inspection. This NRC inspection report does not constitute NRC endorsement of your 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 NRC requirements imposed on you by your customers or NRC licensees in the areas of CGD and for electromagnetic compatibility (EMC) testing. Specifically, QualTech did not perform testing to verify the adequacy of a critical characteristic regarding material composition of a BAL Seal rotary flange seal during commercial grade dedication activities. Additionally, QualTech did not explicitly state, in purchase orders to their sub-suppliers, the proper International Electrotechnical Commission standards and revisions to be used for EMC testing of safety-related components. This resulted in the EMC testing performed by QualTech's sub-suppliers to be inconsistent with the procurement and technical requirements. The enclosed notice of nonconformance (NON) cites these nonconformances, and the circumstances surrounding them are described in detail in the enclosed inspection report.

Please provide a written statement or explanation within 30 days from the date of this letter in accordance with the instructions specified in the enclosed NON. The NRC will consider extending the response time if you show good cause for the agency 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 a copy of this letter, its enclosures, and your response available electronically for public inspection in the NRC's Public Document Room or through the NRC's document system, Agencywide Documents Access and Management System (ADAMS), which is accessible from the NRC Web site 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 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, 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 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 will 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 the inclusion of Safeguards Information 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,

/RA/

Richard A. Rasmussen, Chief
Electrical Vendor Branch
Division of Construction Inspection
and Operational Programs
Office of New Reactors

Docket No.: 99901414

Enclosures:

1. Notice of Nonconformance
2. Inspection Report 99901414/2013-201

In accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding," of the NRC's "Rules of Practice," the NRC will make a copy of this letter, its enclosures, and your response available electronically for public inspection in the NRC's Public Document Room or through the NRC's document system, Agencywide Documents Access and Management System (ADAMS), which is accessible from the NRC Web site 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 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, 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 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 will 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 the inclusion of Safeguards Information 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,

/RA/

Richard A. Rasmussen, Chief
Electrical Vendor Branch
Division of Construction Inspection
and Operational Programs
Office of New Reactors

Docket No.: 99901414

Enclosures:

1. Notice of Nonconformance
2. Inspection Report 99901414/2013-201

DISTRIBUTION:

ASakadales
ERoach
KKavanagh
TFranchuk@QualTech.com

ADAMS ACCESSION No.: ML13200A373

*Concurred via email

NRO-002

OFFICE	NRO/DCIP/CEVB	NRO/DCIP/CEVB	NRO/DCIP/CQAB	KINs
NAME	GGalletti	EHuang	RPatel	JLee*
DATE	07/18/2013	07/22/2013	07/19/2013	07/19/2013
OFFICE	KINs	NRO/DCIP/CAEB	NRO/DCIP/CEVB	
NAME	JKim*	TFrye*	RRasmussen	
DATE	07/19/2013	07/19/2013	7/29/2013	

OFFICIAL RECORD COPY

NOTICE OF NONCONFORMANCE

QualTech NP
Cincinnati, OH

Docket No.: 99901414
Inspection Report No.: 99901414/2013-201

Based on the results of a U.S. Nuclear Regulatory Commission (NRC) inspection conducted at the QualTech NP, (QualTech) facility in Cincinnati, OH, on June 17–21, 2013, certain activities were not conducted in accordance with NRC requirements that NRC licensees contractually imposed on QualTech:

- A. Criterion III, "Design Control," 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 also be established for the selection and review for suitability of application of materials, parts, equipment, and processes that are essential to the safety-related functions of the structures, systems and components."

QualTech's Dedication Plan# CGI-039, "Dedication Plan for BAL Seals, Inc., Rotary Flange Seals, Used In CB&I Airlocks," Revision 3, dated December 14, 2012, states, in part, that a critical characteristic shall be verified internally via Nitric Acid spot test to assure the rotary flange material is 300 stainless steel series and document the results in the inspection data sheet.

Contrary to the above, as of June 21, 2013, QualTech failed to perform a review for suitability of application of materials, parts, equipment and processes that are essential to the safety-related function of the structures, systems, and components as part of commercial grade dedication (CGD) of a BAL Seal rotary flange seal part number 0000045942. Specifically, QualTech did not perform a Nitric Acid spot test to assure the rotary flange material is 300 stainless steel series and document the results in the inspection data sheet as required by the CGD plan for the BAL Seal rotary flange seal.

This issue has been identified as Nonconformance 99901414/2013-201-01.

- B. Criterion III, "Design Control," of Appendix B to 10 CFR Part 50 states, in part, "Measures shall be established to assure that applicable regulatory requirements and the design basis, as defined in § 50.2 and as specified in the license application, for those structures, systems, and components to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions."

QualTech's quality assurance (QA) manual, section 3.0, "Design control", step 3.2.1, states in part that, "when a client's procurement document is received, the document shall be processed to ensure that contract requirements and customer expectations are satisfied and contract requirements are correctly translated into drawings, specifications, instructions, and project documents."

Contrary to the above, as of June 21, 2013, QualTech did not properly translate contract requirements into procurement specifications and test procedures associated with the testing of certain safety-related components. Specifically, QualTech's test procedures that were included with QualTech's purchase orders (POs) to Green Mountain Electromagnetics (GME), did not explicitly state the proper International Electrotechnical Commission (IEC) standards and revisions to be used for electromagnetic compatibility

(EMC) testing of safety-related components. As a result, testing did not conform to the requirements of either Regulatory Guide (RG) 1.180 or the Electric Power Research Institute EPRI TR-102323 as required by the POs to QualTech.

This issue has been identified as Nonconformance 99901414/2013-201-02

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, Construction Electrical Vendor Branch, Division of Construction Inspection and Operational Programs, Office of New Reactors, 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 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 through the NRC's Agencywide Documents Access and Management System, which is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>, to the extent possible, it should not include any personal privacy, proprietary, or Safeguards Information 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, 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 must 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 will 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 Safeguards Information 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."

Dated this the 29th day of July 2013.

**U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF NEW REACTORS
DIVISION OF CONSTRUCTION INSPECTION AND OPERATIONAL PROGRAMS
VENDOR INSPECTION REPORT**

Docket No.: 99901414

Report No.: 99901414/2013-201

Vendor: Curtiss-Wright Flow Control Company
QualTech NP Division
4600 East Tech Drive
Cincinnati, OH 45245

Vendor Contact: Mr. Timothy Franchuk, Quality Director
tfranchuk@curtisswright.com

Background: QualTech NP (formerly Trentec and Sciencetech's EGS Division), located at 4600 East Tech Drive, Cincinnati, Oh 45245 is a provider of Environmental Qualification (EQ), Seismic Testing and Commercial Grade Dedication (CGD) service to the nuclear power industry.

Inspection Dates: June 17–21, 2013

Inspection Team Leader: Greg Galletti, NRO/DCIP/CEVB

Inspectors: Raju Patel, NRO/DCIP/CQVB
Eugene Huang, NRO/DCIP/CEVB
Jin-Sung Kim, KINS
Jae-do Lee, KINS

Approved by: Richard A. Rasmussen, Chief
Electrical Vendor Branch
Division of Construction Inspection and Operational Programs
Office of New Reactors

EXECUTIVE SUMMARY

QualTech NP Division
99901414/2013-201

The U.S. Nuclear Regulatory Commission (NRC) conducted this vendor inspection to verify aspects of the implementation by QualTech NP (QualTech), a division of Curtiss-Wright Company, of its quality assurance (QA) program as required by 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."

This inspection specifically evaluated QualTech's design, production, and dedication of safety-related electrical and mechanical components. QualTech also performs environmental qualification (EQ), equipment qualification, seismic testing, repair and replacement of those systems. The inspectors reviewed the procurement, design, production, commercial grade dedication (CGD), and testing of the QualTech's relays, airlock seals, and other electrical and mechanical components. The NRC conducted this inspection at QualTech's facility in Cincinnati, OH.

The following regulations served as the bases for this NRC inspection:

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

The inspectors used Inspection Procedure (IP) 43002, "Routine Inspections of Nuclear Vendors," dated April 25, 2011, IP 43004, "Inspection of Commercial-Grade Dedication Programs," dated April 25, 2011.

The information below summarizes the results of this inspection.

Commercial Grade Dedication

The inspectors reviewed QualTech's implementing procedures governing the CGD program to verify compliance with the requirements of Criterion III, "Design Control," and Criterion VII, "Control of Purchased Material, Equipment, and Services," of Appendix B to 10 CFR Part 50.

Based on this review, the inspectors issued Nonconformance 99901414/2013-201-01 because QualTech did not verify a critical characteristic related to rotary flange material of a BAL Seal rotary flange seal to demonstrate that the component would be able to perform its safety function.

Design Control

The inspectors reviewed QualTech's implementing procedures governing design control program to verify compliance with the requirements of Criterion III, "Design Control," of Appendix B to 10 CFR Part 50.

Based on this review, the inspectors issued Nonconformance 99901414/2013-201-02, because QualTech did not explicitly state the proper International Electrotechnical Commission (IEC) standards and revisions to be used for electromagnetic compatibility (EMC) testing of

safety-related components, and as a result, Green Mountain Electromagnetics (GME) did not perform EMC testing consistent with the procurement and technical requirements.

Procurement/Supplier Control

The inspectors determined that QualTech's procurement and oversight of contracted activities conformed to the requirements of Criterion IV, "Procurement Document Control," and Criterion VII, "Control of Purchased Material, Equipment, and Services," of Appendix B to 10 CFR Part 50. No findings of significance were identified.

Testing

The inspectors determined that QualTech's testing quality controls conformed to the requirements of Criterion XI, "Test Control" of Appendix B to 10 CFR Part 50. No findings of significance were identified.

Measuring and Test Equipment

The inspectors determined that QualTech has established a program that adequately controls calibration and use of measuring and test equipment (M&TE) in accordance with the regulatory requirements of Criterion XII, "Control of Measuring and Test Equipment," of Appendix B to 10 CFR Part 50. No findings of significance were identified.

Inspection

The inspectors concluded that QualTech has established a program that adequately controls inspection activities under the regulatory requirements of Criterion X, "Inspection," of Appendix B to 10 CFR Part 50. No findings of significance were identified.

Nonconformances and Corrective Actions

The inspectors determined that the implementation of QualTech's programs for control of nonconforming material, parts, or components and corrective action were consistent with the regulatory requirements in Criterion XV, "Nonconforming Materials, Parts, or Components," and Criterion XVI, "Corrective Action," of Appendix B to 10 CFR Part 50. No findings of significance were identified.

REPORT DETAILS

1. Commercial Grade Dedication

a. Inspection Scope

The inspectors reviewed QualTech NP's (QualTech) implementing policy and procedures that govern the commercial grade dedication (CGD) process to ensure that those guidelines adequately described the process as required by 10 CFR Part 21. The inspectors reviewed a sample of CGD packages to determine if the process identified in QualTech's Quality Assurance Manual (QAM) Section 19.0, "Commercial Grade Items and Services," and quality assurance procedure (QAP) 8.06, "Dedication and Supply of Commercial Grade Items" Revision 3, dated March 27, 2013, for dedicating its electrical and mechanical components was being adequately implemented. The inspectors also observed the CGD dedication of two fuses and a relay by QualTech staff. The inspectors discussed the dedication process with QualTech management and technical staff associated with performance of the CGD process.

b. Observations and Findings

b.1 Review of Completed dedication packages:

The inspectors identified that a critical characteristic related to the material composition of a rotary flange seal was not performed and documented (i.e., QualTech Dedication File Number CJ236801, "BAL Seal rotary flange seal, P/N PP-R1006MB-319-FP-X48, for personnel airlock shaft seal, BAL Seal with 302 stainless steel spring materials, lot No. 2508053,"). QualTech dedication plan No. CGI-039 required that the rotary flange seal material be tested via Nitric Acid spot test to verify it conforms to 300 stainless steel series material acceptance criteria. The inspectors determined that without physically verifying the critical characteristics for material, QualTech was unable to demonstrate that the BAL Seal rotary flange seal was capable of performing its safety function when subjected to chemical attack damage as documented in the technical evaluation of the dedication plan. The technical evaluation in the dedication plan documented the BAL Seal rotary flange seal as providing an "essentially," leak-tight barrier for penetrating shafts at the containment boundary areas in an airlock when subjected to design basis event conditions that include hardening or cracking due to heat, radiation, or chemical attack.

This issue has been identified as Nonconformance 99901414/2013-201-01.

b.2 Witness of CGD Activities

The inspectors witnessed CGD activities for dedication of NON-6, 250 VAC, 6A, Bussman fuse as QualTech Tag# CJ292302, and NON-30, 250 VAC, 30A, Bussman fuse under QualTech Tag# CJ292301, and Joslyn Clark P/N 4U4-2 Relays, under QualTech Tag# CJ290801. The inspectors verified that the QualTech test technician performed visual and functional testing of the components using calibrated test equipment in accordance with the written dedication plans. The inspectors confirmed that the dedication activities observed were adequately documented as part of the design and configuration verification test results.

c. Conclusions

The inspectors reviewed QualTech's policies and implementing procedures that govern the CGD program to verify compliance with the requirements of Criterion III, "Design Control," and Criterion VII, "Control of Purchased Material, Equipment, and Services," of Appendix B to 10 CFR Part 50.

Based on this review, the inspectors issued Nonconformance 99901414/2013-201-01 for QualTech's failure to adequately verify a critical characteristic related to a BAL Seal rotary flange seal material which demonstrated that the components would be capable of performing their safety function.

2. Design Control

a. Inspection Scope

The inspectors reviewed QualTech's policies and implementing procedures that govern the design control program to verify compliance with the regulatory requirements in Criterion III, "Design Control," 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."

The inspectors also reviewed a sample of procurement and system design specification documents, seismic and environmental qualification (EQ) reports, CGI dedication packages, and associated QualTech's purchase orders (POs). In addition, the team reviewed QualTech's test reports and software control procedures to verify that the vendor was maintaining adequate design control with respect to the results from the seismic qualification testing related to mechanical components (cooling fan, solenoid/relief valve and actuator, cabinet lock door handle/center latch) and electrical components (MCCB, Current transducer) as well as electromagnetic compatibility (EMC) testing activities.

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

b. Observations and Findings

b.1 Seismic Qualification and Testing

The inspectors evaluated the adequacy of design Inputs for a sample of seismic qualifications performed by QualTech. The inspectors verified that samples of seismic qualification input data were clearly identified, traceable to technical requirements and specifications, and adequately documented. The inspectors verified that all design inputs for the samples evaluated had been reviewed and approved by the responsible design organization.

The inspectors evaluated a sample of seismic qualification reports and verified those reports adequately addressed design input information as well as test results clearly and was consistent with the guidance established in the Institute of Electrical and Electronic Engineers (IEEE) – 344 standard. Additionally, the inspectors reviewed a sample of

seismic test data logs, and found them to be generally consistent with the testing plan and procedural requirements.

The inspectors reviewed the status of software programs used to monitor and control the seismic test facility apparatus. The inspection team verified that the software for seismic testing had been adequately calibrated in accordance with the test control plans and was up to date. The inspectors also evaluated the verification activities performed by the vendor regarding seismic testing software and confirmed that the verification activities were adequately documented and evaluated by the responsible design organization.

b.2 Environmental Qualification and Testing

The inspectors evaluated a sample of design requirements related to both environmental testing (RE 102 Radiated Emissions, high-frequency, 2 megahertz to 10 gigahertz) and similarity analysis for GE magnetic molded case circuit breaker (MCCB). The inspection team verified that the Crystal River Nuclear Unit 3 system specification was adequately translated into QualTech's qualification plans and testing procedures.

In addition, the inspectors reviewed a sample of recent dedication activities associated with the MCCB and a current transducer (MCCB - TEC36007; and CJ1871, Current transducer) and confirmed that the vendor had adequately accounted for and incorporated pertinent changes into the EQ testing plans as a result plant configuration issues identified by Progress Energy. The inspectors found that these modifications were adequately identified and changes were incorporated into pertinent design documents and procedures associated with the dedication plan.

The inspectors confirmed that (1) design documents specified and included the appropriate technical and quality requirements, and (2) QualTech integrated independent design reviews and verification activities consistent with the design control program requirements into the design and testing documentation and performed activities in accordance with those procedures.

b. 3 EMC Testing

The inspectors reviewed a sample of POs to QualTech from various customers that required components to be tested to the standards in either Regulatory Guide (RG) 1.180 or Electric Power Research Institute (EPRI) guidance TR-102323 for EMC. The team noted that QualTech contracted out this testing to a test facility, GME, and attached a specific test procedure to each PO with the requirements that needed to be met. The inspectors identified that in the various test inspection procedures that were sampled, QualTech had not specified which IEC revision GME was required to use. As a result, the test reports from GME listed a variety of IEC revisions, none of which conformed to QualTech's customer requirements regarding RG 1.180 or EPRI TR-102323.

Furthermore, the inspectors identified that QualTech did not perform a gap analysis or engineering evaluation on a case-by-case basis to determine if the IEC revisions, test setups, or test parameters used would still envelop the original test requirements. The inspectors noted that there are material differences between different IEC revisions that were used, that may produce less conservative results than assumed in either the RG 1.180 or EPRI TR-102323 documents.

QualTech's failure to ensure that the correct technical requirements and standards consistent with the procurement and technical requirements were specified in the test procedures attached to the POs to GME is identified as Nonconformance 99901414/2013-201-02.

c. Conclusions

The inspectors reviewed QualTech's implementing procedures governing design control program to verify compliance with the requirements of Criterion III, "Design Control," of Appendix B to 10 CFR Part 50.

Based on this review, the inspectors issued Nonconformance 99901414/2013-201-02, because QualTech did not explicitly state the proper International Electrotechnical Commission standards and revisions to be used for electromagnetic compatibility testing of safety-related components, and as a result, did not perform EMC testing consistent with the procurement and technical requirements.

3. Procurement/ Supplier Control

a. Inspection Scope

The inspectors reviewed QualTech's policies and procedures that govern the implementation of QualTech's oversight of contracted activities to verify compliance with Criterion IV, "Procurement Document Control," and Criterion VII, "Control of Purchased Material, Equipment, and Services," of Appendix B to 10 CFR Part 50. The inspectors reviewed a sample of POs, the associated vendor commercial grade survey reports, and discussed QualTech oversight of contracted activities with QualTech management and technical staff. The attachment to this inspection report lists the documents reviewed by the inspectors.

b. Observations and Findings

b.1. Procurement Document Control

QualTech's quality assurance (QA) manual details the controls established to ensure procurement documents and purchased items and services meet applicable technical and quality requirements. QAP 5.02, "Preparation, and Placement of a Purchase Order," Revision 6, dated March 11, 2013, describes QualTech's process of inclusion of the applicable quality and customer requirements in the procurement documents.

The inspectors verified that the POs included as applicable, scope of work, right of access to facilities and records for source inspections and audits, reporting and approving disposition of nonconformances, references to specific drawings, codes, and specifications. Each PO invoked QualTech form 122-09-96, "Quality Assurance Requirements," that details the technical and QA requirements for procurement of safety-related and commercial grade item or services.

b.2. Supplier Qualification Activities

The inspectors verified that QualTech's approved vendors list (AVL) included appropriate documentation to control and limit the use of QualTech's sub-supplier's

consistent with each individual scope of supply. The inspectors verified the listings from the AVL and cross-referenced the information with applicable audit or commercial grade survey reports.

The inspectors confirmed that the audit/survey/surveillance reports included approved plans and contained a documented review of the relevant QA criteria in Appendix B to 10 CFR Part 50 for the activities that individual vendors performed and documentation of pertinent vendor guidance associated with each criterion. For those audit, commercial grade survey, or surveillances reports that resulted in findings, the inspectors verified that the vendor had established a plan for corrective action and that QualTech had reviewed and approved the corrective action and verified its satisfactory completion and proper documentation. In addition, the inspectors reviewed the training requirements and records of the lead auditor to verify that the lead auditor was qualified and annually evaluated in accordance with QualTech's procedure QAP 3.01, "Auditor Training and Qualification," Revision 3, dated October 1, 2011.

c. Conclusions

The inspectors determined that the implementation of QualTech's programs for procurement document control and control of purchased material, equipment, and services, were consistent with the regulatory requirements of Criterion IV and VII of Appendix B to 10 CFR Part 50. No findings of significance were identified.

4. Testing

a. Inspection Scope

The inspectors reviewed QualTech's policies and procedures governing the implementation of its testing program to verify compliance with Appendix B to 10 CFR Part 50. Specifically, the inspectors evaluated samples of equipment seismic and environmental testing on-going during the inspection. In addition, the inspectors sampled QualTech's Measuring and Test Equipment (M&TE) calibration records for test equipment to ensure that requirements of instrument and testing devices used in activities affecting quality were properly controlled. The inspectors reviewed the qualification plans for AP-1000 EPDM O-rings for Personnel Airlocks and Equipment Hatches. - Environmental Qualification testing and test procedure No. AP1000-QP1, Revision 3, dated June 6, 2012, and Assurance Technical Service Inc. ATS TP-11-033-01, Revision 0 dated March 1, 2013, "W AP1000 Containment Design Basis Accident Qualification Test Procedure for QuaTech AP1000-100-1 Seal Test Assembly, " as well as, the in-process test log and both pre and post thermal aging functional data sheets, mechanical cycle aging data sheets, and post radiation functional test documentation. Additionally, the inspectors observed seismic and EQ testing in-progress at the facility and interviewed various QualTech personnel responsible for testing activities.

b. Observations and Findings

The inspectors observed and evaluated the EQ testing of two formulations of thermal seals. The assemblies were subject to various aging mechanisms (thermal, mechanical, and gamma radiation) plus maximum radiation dose expected during applicable accident. The inspectors confirmed that the test procedure described the system

configuration, instrument configuration, instrument calibration, test process, and test record requirements. The inspectors confirmed that when testing did not meet requirements, nonconformance reports (NCRs) were initiated and recorded on the test data forms. The inspectors confirmed that the nature of the issue was identified on the NCRs (excessive leakage) and proposed corrective actions identified. In addition the vendor developed a deviation report DR-001, dated November 7, 2012, to identify conditions not meeting specific test plan pre-requisite requirements (i.e., use of M&TE outside range specified in plan).

The team observed and evaluated submergence testing in progress which included use of calibrated data acquisition equipment, pressure indicators, and thermocouples which were all adequately labeled indicating current calibration records. The inspectors confirmed that the test log was adequately maintained with periodic (daily) entries for process temperature, pressure and chemical pH, and verified that QA/QC oversight was adequately implemented. The inspectors verified that testing was performed according with the test plans.

c. Conclusions

The inspectors determined that the implementation of QualTech's programs for control of testing were consistent with the regulatory requirements of Criterion XI of Appendix B to 10 CFR Part 50. No findings of significance were identified.

5. Measuring and Test Equipment

a. Inspection Scope

The inspectors reviewed M&TE policies and procedures to determine if QualTech's controls were in compliance with the regulatory requirements of Criterion XII, "Control of Measuring and Test Equipment," of Appendix B to 10 CFR Part 50. In addition, the inspectors verified the implementation of M&TE control through direct observation of inspection activities of QualTech personnel and review of certificates of calibration for a sample of M&TE. The inspectors reviewed evaluations performed by QualTech of commercial calibration services suppliers, and confirmed that the surveys evaluated the sub-suppliers QA program documentation and processes against acceptance criteria of ISO IEC 17025 and ISO 9001:2008 to assure control of critical M&TE calibration processes. Process included detailed audit plans, checklist, summary report, letter to commercial calibration supplier, and calibration laboratory accreditation documentation.

b. Observations and Findings

The inspectors evaluated a sample of M&TE associated with the testing of the QualTech AP1000-100-1 Seal Test Assembly, and confirmed that the vendor used calibrated equipment for testing in accordance with QualTech's testing procedures. The inspectors confirmed that the instruments were calibrated and appropriate for the range of operation for each described activity.

The inspectors evaluated QualTech's calibration frequency for common items and discussed the basis for the calibration frequency with QualTech personnel. The inspectors confirmed that the calibration frequency was based on standards

recommended by the original equipment manufacturer, operational experience, and frequency of use.

Additionally, QualTech's supplier calibration services oversight process was evaluated. The inspectors confirmed that the accreditation covered the ranges of parametric values for which these devices were used during testing. The inspectors confirmed traceability to National Institute of Standards and Technology calibration standards and that all test and inspection equipment used for the observed inspection and test activities were controlled, documented, and current for calibration requirements.

c. Conclusions

The inspectors determined that the implementation of QualTech's programs for control of calibration and use of M&TE were consistent with the regulatory requirements of Criterion XII of Appendix B to 10 CFR Part 50. No findings of significance were identified.

6. Inspection

a. Inspection Scope

The inspectors reviewed inspection policies and procedures to determine if QualTech's controls were in compliance with the regulatory requirements of Criterion X, "Inspection," of Appendix B to 10 CFR Part 50. In addition, the inspectors discussed the inspection program with QualTech inspection personnel responsible for implementation, reviewed documented results of final inspections, and observed inspections performed as part of the ongoing nuclear-related fabrication and testing activities, including receipt, in-process, and final inspections, to verify inspection program implementation.

b. Observations and Findings

Receiving Inspection

The inspectors evaluated QAP 8.01, "Receiving inspection," Revision 3, which describes the process for performance of receiving activities at QualTech, including: receipt of incoming shipments; performance of initial review of package documentation to verify the purchase was consistent with PO information; review for obvious shipping damage; and verification of the quality of the items received. The procedure also documents the process for creating the included material rejection report, receiving inspection acceptance tag, and incoming inspection record.

The inspectors verified (through observation) the receipt of a threaded rod and calibration equipment. The inspectors observed the inspection requirements and review of packaging documentation, confirmation of the PO information, review for any obvious damage, verification of the quantity received, and generation of the inspection record. The inspectors also reviewed the documentation and corrective action documents created due to anomalies found during the receipt inspection.

In-Process Inspection

The inspectors evaluated QAP 14.02, "In-process and final inspection of Nuclear Parts and Components," Revision 1, which describes the various inspection activities that QualTech personnel performed during manufacturing activities. The inspectors confirmed that the procedure included pertinent information that clearly identified and controlled the production activities at the inspection workstations, including: inspection requirements and acceptance criteria hold points, planning, sampling, in-process inspection, final inspections, rework inspection requirements, and recording.

The inspectors witnessed an in-process inspection of a sample of safety-related swing bolt clevis pins. The inspectors verified that the appropriate characteristics taken from the applicable inspection procedure and drawings were verified and documented through the process.

c. Conclusions

The inspectors determined that the implementation of QualTech's programs for control of inspection activities were consistent with the regulatory requirements of Criterion X of Appendix B to 10 CFR Part 50. No findings of significance were identified.

7. Nonconformances and Corrective Actions

a. Inspection Scope

The inspectors reviewed QualTech's nonconformance and corrective action programs, related procedures, a sample of material rejection reports (MRR), NCRs, and condition report forms (CRs), and interviewed related QA personnel to determine whether QualTech is in conformance with the regulatory requirements of Criterion XV, "Nonconforming Materials, Parts, or Components," and Criterion XVI, "Corrective Action," of Appendix B to 10 CFR Part 50.

The inspectors also reviewed QualTech's process to control nonconformances and corrective actions to ensure a connection to the reporting procedures of 10 CFR Part 21, "Reporting of Defects and Noncompliance."

b. Observations and Findings

The inspectors verified that QualTech's procedures for nonconformance control include identification, segregation, documentation, disposition processes, and that they are connected to QualTech's corrective action program. The inspectors selected a sample of MRRs and CRs available and verified that the appropriate disposition and actions were taken to resolve the issues. The inspectors noted that the current and draft corrective action procedures did have a connection to the reporting procedures of 10 CFR Part 21.

c. Conclusions

The inspectors determined that the implementation of QualTech's programs for control of nonconforming material, parts, or components and corrective action were consistent

with the regulatory requirements of Criterion XV and Criterion XVI of Appendix B to 10 CFR Part 50. No findings of significance were identified.

8. Entrance and Exit Meetings

On June 17, 2013, the inspectors presented the inspection scope during an entrance meeting with Mr. Tim Franchuk, Director of Quality, QualTech, and other QualTech personnel. On June 21, 2013, the inspectors presented the inspection results during an exit meeting with Mr. Kurt Mitchell, General Manager, QualTech, and other QualTech personnel.

ATTACHMENT

1. PERSONS CONTACTED AND NRC STAFF INVOLVED

Name	Title	Affiliation	Entrance	Exit	Interviewed
K. Mitchell	General Manager	QualTech		X	
T. Franchuk	Director of Quality Assurance	QualTech	X	X	X
M. Chatham	Senior Operations Director	QualTech	X	X	
R. DiSalvo	Director Engineering	QualTech	X	X	
J. VonNida	Engineering Products Operations Manager	QualTech	X	X	
M. D. McClung	Quality Assurance Engineer/Lead Auditor	QualTech	X	X	X
M. Bell	Commercial Grade Dedication Manager	QualTech	X	X	
M. Wooldridge	Product Manager	QualTech	X	X	X
J. Hordowick	Test Engineer	QualTech	X	X	X
E. Clancy	Test Technician	QualTech			X
K. Parsons	Test Technician	QualTech			X
D. Mayers	Test Technician	QualTech			X
A. Jackson	Quality Control Inspector	QualTech			X
J. D. Clark	Directors of Engineering Products	QualTech	X	X	
M. S. Nemier	Seismic & EQ Manager	QualTech	X	X	X
J. Helvey	Senior Quality Specialist	QualTech			X
D. Minkow	Senior Principal Electrical Engineer	QualTech	X	X	X
A. Paul	Product Specialist/Safety	QualTech	X		
G. Galletti	Inspection Team Leader	NRC	X	X	
E. Huang	Inspection Team Member	NRC	X	X	
R. Patel	Inspection Team Member	NRC	X	X	
J. Lee	Inspection Team Member	KINS	X	X	

J. Kim	Inspection Team Member	KINS	X	X	
--------	------------------------	------	---	---	--

2. INSPECTION PROCEDURES USED:

IP 43002, "Routine Inspections of Nuclear Vendors"

IP 43004, "Inspection of Commercial-Grade Dedication Programs"

3. ITEMS OPENED, CLOSED, AND DISCUSSED:

<u>Item Number</u>	<u>Status</u>	<u>Type</u>	<u>Description</u>
99901414/2013-201-01	OPEN	NON	Criterion III
99901414/2013-201-02	OPEN	NON	Criterion III

4. DOCUMENTS REVIEWED:

QA Procedures

- QAP 4.03, "Verification and Control of Computer Software," Revision 3, March 26, 2013
- QAP4.06, "PROSIG Data Acquisition(DATS for Windows) and Shock Analysis System Verification/Validation Procedure Title", Revision 5, September 4, 2013
- QAP 8.01, " Receiving Inspection," Revision 3, July 12, 2012
- QAP 8.02, "Supplier Surveillance and Source Inspection," Revision 1, December 18, 2012
- QAP 8.05, Product Verification, Revision 1, dated July 16, 2012
- QAP 8.06, "Dedication and Supply of Commercial Grade Items Having Safety Related Applications," Revision 3, March 27, 2013
- QAP 9.02, "Identification of Qualified Samples and Dedicated Items," Revision 2, September 10, 2012
- QAP 9.03, " Control of Limited Life Items," Revision 1, July 11, 2012
- QAP 11.01, "Qualification Testing," Revision 2, December 20, 2012
- QAP 12.01, " Calibration System Requirements," Revision 8, May 15, 2013
- QAP 14.01, Sampling Procedure for Inspection by Attributes, Revision 1, dated June 14, 2013
- QAP 14.02, In-process and Final Inspection of Nuclear Parts and Components, Revision 1, dated January 21, 2013
- QAP 15.01, Nonconforming items, Revision 3, dated March 5, 2013
- QAP 15.03, Management Review and Trend Analysis, Revision 3, dated January 2, 2013
- QAP 15.04, Material Rejection Report, Revision 5, dated August 27, 2012
- QAP 16.01, Corrective Action Requests, Revision 8, dated January , 2013
- QAP 16.02, Root Cause Analysis, Revision 0, dated March 30, 2012
- QAP 16.03, Corrective Action Program, Revision 1, dated February 19, 2013
- QAP 16.04, Corrective Action Program , Revision 0, dated December 12, 2012
- QAP 18.01, "Audits," Revision 7, June 26, 2012

- QAP 18.02, "Evaluation of NIAC Committee Assessment Reports," Revision 2, November 1, 2011
- QAP 18.04, "Quality Assurance Surveillances," Revision 0, August 29, 2012

Certificates of Calibration

- Calibration Certificate 5838306, Megger MIT310 Tester, Insulation Resistance dated October 26, 2012
- Calibration Certificate 6002790, Agilent 34401A Meter, Bench top Digital, dated March 4, 2013
- Calibration Certificate 5811705, Mitutoyo D12"TN Caliper, Analog, dated September 25, 2012
- Calibration Certificate 5909915, Agilent 34330A, Shunt, Current dated December 17, 2012
- Calibration Certificate 5929325, Agilent 34401A, meter, bench top digital multimeter, dated January 9, 2013
- Calibration Certificate 5896575, Ohaus, ES50L, Bench scale, dated December 5, 2012
- Calibration Certificate Report No. 3041611QTN98.3, Agilent 34401A, 6.-1/2 Digital Multimeter, dated April 30, 2012

Commercial Grade Dedication Packages and Plans

- Dedication File# CJ10001, for a York temperature compressor, P/N RS-124A, S/N 01 for Luminent Generation Co. Comanche Peak purchase order (PO) S07230286S2 dedicated in accordance with dedication plan # CJ1000-1, "Dedication Plan For A York Compressor P/N: RS-124A," Revision 1, dated May 14, 2012 for mild environment
- Dedication File# CJ00913, for twenty Dual Element 3 Amp Fuse, P/N FRS-R-3, QualTech identification sample numbers (ISNs) 01-20 and Transformer 2KVA, 240X480, 60 HZ, P/N 9T51B0012, Mfg S/N 01-016OWN & 02-016OWO, date code N1291, QualTech Tag# CJ91302, ISN No. 01 & 02, for Dominion PO CP00001723
- Dedication File# CJ69801 for Tyco/Potter & Brumfield Time Delay Relay, P/N CNT-35-96 for Exelon-LaSalle PO 00474415, dedicated and re-qualified in accordance with the requirements of dedication plan# T9362EL-1, "Dedication Plan For A Tyco/Potter & Brumfield Multifunction Time Delay Relay P/N: CNT-35-96," Revision 1, dated April 23, 2013, in response to 10 CFR Part 21 report
- Dedication File# CJ87101, for Eaton Cutler Hammer P/N 10250T184NC7N, Light, Electrical, power indicator, 480V, door, Red Transformer Base, for Tennessee Valley Authority (TVA) PO 313441-2 dedicated to meet the acceptance criteria IEEE-323-1974 (mild environment) and TVA SS-E18.10.01, "Environmental Qualification Requirements for safety-related Electrical Equipment," Revision 4, dated February 15, 2005, and TVA Standard Specification No. CEB-SS-5.10, "Seismic Qualification of Electrical, Mechanical, and I&C Devices," Revision 3, dated January 18, 2008
- Dedication File# CJ2676.1 for six Demister Filters CVI P/N 98-0120-00128 QualTech S/N 01-06 for Entergy Operations, Inc., PO 1037660 dedicated in accordance with dedication plan No. 3T028VI-1, "Dedication Plan For Filter, Demister, P/N 101-55A & 55B," Revision 4, dated June 10, 2012
- Dedication file for Allen Bradley Relay P/N 700-RTC02200U1 dedicated in accordance with QualTech's test procedure, TP-Q1251.0, "Electromagnetic

- Compatibility Test Procedure for an Allen-Bradley 700-RTC02200U1 Timing Relay,” Revision 1, dated February 22, 2013
- Dedication file for a set of 1”-5” ACME-2G thread go/no plug gages QualTech asset# 912 commercially calibrated by Alliance Calibration In., to PO CP0004915, dedicated by QualTech upon receipt on May 22, 2013 in accordance with QualTech PO and calibration procedure QAP 12.01
 - Dedication file for, ¾” -16 Element moisture probe calibrated M-Series probe for use with M550 Hygrometer, P/N M255HR-00-010-0 QualTech asset# 672, commercially calibrated by GE Infracture Sensing Inc., to PO CP00004660, dedicated by QualTech upon receipt on March 27, 2013 in accordance with PO and QAP 12.01
 - Dedication Plan No. CJ1000-1, “Dedication Plan For A York Compressor P/N: RS-124A,” Revision 1, dated May 14, 2012 for mild environment
 - Dedication Plan No. T9362EL-1, “Dedication Plan For A Tyco/Potter & Brumfield Multifunction Time Delay Relay P/N: CNT-35-96,” Revision 1, dated April 23, 2013
 - Dedication Plan No. 3T028VI-1, “Dedication Plan For Filter, Demister, P/N 101-55A & 55B,” Revision 4, dated June 10, 2012
 - Dedication Plan No.: CJ913-1,” Dedication Plan for Bussmann Fuse P/N FRS-R-3 and General Electric Transformer P/N 9T51B0012,” Revision 0, dated January 12, 2012
 - Dedication Plan No.: T8609FU-1, “Dedication Plan for a Bussmann Fuses P/N NON-1/8 To NON-60, Revision 0, dated December 16, 2008

Condition Report Forms

- C12-16, dated August 10, 2012
- C12-140, dated December 17, 2012
- C12-144, dated December 21, 2012
- C12-148, dated December 21, 2012
- C12-149, dated December 21, 2012
- C12-150, dated December 21, 2012
- C13-166, dated January 15, 2013
- C13-167, dated January 15, 2013
- C13-168, dated January 15, 2013
- C13-177, dated January 30, 2013
- C13-182, dated February 4, 2013
- C13-193, dated February 26, 2013
- C13-209, dated March 19, 2013
- C13-218, dated April 16, 2013
- C13-221, dated April 18, 2013
- C13-222, dated April 18, 2013
- C13-227, dated April 25, 2013
- C13-231, dated May 3, 2013
- C13-234, dated May 9, 2013
- C13-240, dated May 22, 2013
- C13-245, dated May 28, 2013
- C13-250, dated May 29, 2013

Drawings

- BNP1-QH-DG-101-2, Swing Bolt Clevis Pin, Revision B.

Miscellaneous Documents

- Engineering Evaluation for MCCB/Fuse/Circuit Protector Failures, dated June 13, 2013
- MRB First Quarter Trend Report, dated April 18, 2013
- Annual MRB Trend Report, dated November 7, 2012
- Q1304.1, Electromagnetic Compatibility Test Procedure for a Trane model no. PRGCA011BG0A/MOD purge unit, Revision 1, dated February 14, 2013
- Q1304.1, Electromagnetic Compatibility Test Procedure for a Trane model no. PRGCA011BG0A/MOD purge unit, Revision 0, dated March 8, 2013
- Part 21 Notification Review Form, dated May 21, 2013
- IEEE Standard (Std.) 323-1974, "IEEE Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations," dated February 28, 1974
- IEEE Standard (Std.) 344-1975/1987, "IEEE Recommended Practice for Seismic Qualification of Class 1E Equipment for Nuclear Power Generating Stations"
- RG 1.100, "Seismic Qualification of Electrical and Mechanical Equipment for Nuclear Power Plants," Revision 2, June 1988"
- IEEE Standard (Std.) 344-2004, "IEEE Recommended Practice for Seismic Qualification of Class 1E Equipment for Nuclear Power Generating Stations," issued January 2004
- DATSW (DATS for windows) Version 7.0.9
- Seismic Testing Software Version 2.00.07
- Transmissibility Testing System Version V.2.00.09
- Similarity Analysis report for Fuse FRS-R-3, Tag# CJ91301, for dedication file# CJ913.1, reviewed and approved dated January 30, 2012
- Similarity Analysis report for Transformer, GE P/N 9T51B0012, QualTechTag# CJ91302, for dedication file# CJ913.1 dated January 30, 2012
- Farwell & Hendricks Report No. 70021.1, "Nuclear Environmental Qualification Report for Bussmann FRS-R-1/10 Thru FRS-R-30 Fuses," Revision 01, dated August 13, 1990
- Farwell & Hendricks Report No. 60947, "Nuclear Environmental Qualification Report for General Electric Transformer P/N 9T51B12," Revision 0, dated April 30, 1991
- Dedication Plan No.: L9001TE-3, "Test/Inspection Plan For Squared D Pilot Lights," Revision 1, dated December 01, 2009
- QualTech Report No. L9001SE0, "Seismic Test Report for Cutler Hammer/Eaton Indicating Light," Revision 1, dated September 22, 2011
- QualTech Evaluation Report No. L9001TE.FE, "Failure Evaluation and Suggested Corrective Action for Square D 480VAC Transformer Lights Used in Watts Bar II Telemecanique Motor Control Centers," Revision 0, dated August 2, 2011
- Visual Inspection Data Sheet DP T9041EL-1, Revision 1 for QualTech Tag# CJ290801, ISNs 01-05, Joslyn Clark P/N 4U4-2, mfg. date code 24/13, per dedication plan #T9041EL-1, dated June 18, 2013
- Dimension Verification Data Sheet For Non-1/8 to NON-30 for QualTech Tag# CJ292302, ISN# 01, 02, 04-08, 10, Bussmann Fuse P/N NON-6, mfg. date code W23, to QualTech dedication plan# T8609FU-1, dated June 18, 2013
- CGD Receipt Inspection Report for QualTech Tag# CJ292301, ISN 01-20, mfg. date code W22, procured from Cooper Bussmann Inc., on PO CP5324 for Contract # CC2447 CJ2923, accepted date June 18, 2013

- Data Sheet for Resistance Verification, form No. DP# T8609FU-1, Revision 0, for QualTech Tag# CJ292301, ISNs 01-20 Bussmann NON-30 fuses, mfg. date code W22 dated June 18, 2013
- Regulatory Guide (RG) 1.89, "Environmental Qualification of Certain Electric Equipment Important to Safety for Nuclear Power Plants," Revision 1, June 1984
- RG 1.180, "Guidelines for Evaluating Electromagnetic and Radio-Frequency Interference," Revision 1, October 2003
- RG 1.100, "Seismic Qualification of Electrical and Active Mechanical Equipment and Functional Qualification of Active Mechanical Equipment for Nuclear Power Plants," Revision 3, October 2009
- MIL-STD-461E, "Requirements for the Control of Electromagnetic Interference Characteristics of Subsystems and Equipment," U.S. Department of Defense, August 20, 1999

Nonconformance Reports

- NCR 11-85, dated June 17, 2011
- NCR 12-98, Revision 0, dated July 16, 2012

Procurement and System Specifications

- TVA SS-E18.10.01, "Environmental Qualification Requirements for safety-related Electrical Equipment," Revision 4, dated February 15, 2005
- TVA Standard Specification No. CEB-SS-5.10, "Seismic Qualification of Electrical, Mechanical, and I&C Devices," Revision 3, dated January 18, 2008

Purchase Orders

- PO #CP00005332, C.M. Muckbee for procurement of 3 pcs of 3/4-10 B7 X 12 feet of threaded rod, Alloy Steel ASTM-193 Gr. B7
- PO #CP00004139, BAL Seal Engineering Company, dated December 10, 2012,
- PO #CP00004452, Bowser-Morner, Inc., dated December 17, 2012
- PO #CP00004499, Green Mountain Electromagnetics, Inc., dated January 4, 2013
- PO #CP00004915, Alliance Calibration Inc., dated April 4, 2013
- PO #CP00004660, GE Infracture Sensing, Inc., dated March 27, 2013
- PO #CP5324, Cooper Bussmann Inc., dated June 7, 2013
- PO #SNG 10041209, QualTech to Georgia Power, dated on July 8, 2012
- PO #627309, QualTech to Progress Energy, dated on April 4, 2013
- PO#10369436, Entergy to QualTech, Revision 4, dated February 25, 2013
- PO#CP00004060, QualTech to Simco Electronics, dated September 26, 2012
- PO#CP00003929, QualTech to PCB Piezotronics, Inc., dated September 5, 2012
- PO#CP00004499, QualTech to Green mountain electromagnetics, dated January 4, 2013
- PO#70259316, Dominion Virginia Power to QualTech, dated May 8, 2013
- PO#00043809, Monticello Nuclear Generating Plant to QualTech, dated October 11, 2012
- PO#SNG10046797, Vogtle to QualTech, Revision 3, dated February 28, 2013
- PO#SNG10046797, Vogtle to QualTech, Revision 0, dated November 9, 2012
- PO#CP00004673, QualTech to Green mountain electromagnetic, dated February 25, 2013

Seismic Qualification and Test Reports

- S1309.0, "Seismic Test Report for a Globe Motors Tubeaxial Cooling Fan", Revision 0, March 1, 2013
- S1129, "Seismic Test Report for a Honeywell Temperature controller, Potter & Brumfield Relay, Ashcroft Pressure Gauges, Westinghouse Relay, General Electric Relay, QualTech NP Custom Panel and Kerry Co. Actuator", Revision 0, December 22, 2011
- S1128.1, "Seismic Test Report for a Mechatronics Axial Cooling Fan", Revision 0, June 19, 2013
- S1216.1, "Seismic Test Report for a QualTech NP Dual Relief Valve and Ramfan Corp./Euramco Safety Inc." Revision 0, September 21, 2012
- Q1126.0, "Seismic Qualification Report for National Cabinet Lock Door Handle/Center Latch", Revision 0, June 24, 2011
- Q1128.0, "Seismic Qualification Test Report for AP1000 DRCS Cabinet", Revision 0, December 19, 2011
- Q1208.0, "Seismic Test Report for a York(ASCO) Solenoid Valve", Revision 0, March 22, 2012
- Test Sample Set-up/Mounting Log Sheet(Test Sample #: S1128-21-01-01, S1216-03-01-01)
- 25402-011-V1A-ECM1-01868-002, Seismic Test Report for Cutler Hammer/Eaton Indicating Light, Revision 1, dated September 22, 2011

Supplier Audits, Surveys, and Surveillances

- Audit report of Bowser-Morner, Inc., dated March 12, 2013, approving it for supplier of laboratory testing on safety-related samples supplied by QualTech in accordance with ASME NQA-1 requirements
- Audit report of Green Mountain Electromagnetics, Inc., (GME), dated May 14, 2012, approving it as a supplier of Electromagnetic Testing- EMI/RFI testing services to QualTech supplied test samples in accordance with QualTech test procedures
- NIAC Audit report # 17105 of Exelon PowerLabs, LLC, PA, dated January 17 & 18, 2012 performed by NIAC member Steam Generating Team Ltd, review and acceptance by QualTech, approving Exelon PowerLabs as a supplier of laboratory and calibration services of safety-related components and equipment supplied by QualTech
- Commercial Grade Survey report of BAL-Seal Engineering, Inc., dated November 14, 2012, approving BAL-Seal Engineering Inc., for procurement of BAL Seal flange seals in accordance with QualTech dedication plan
- Commercial Grade Survey of ACS-Amistco (AMACS), TX dated February 16, 2012 approving it as a supplier of commercial grade knitted mesh mist eliminators and associated products design and fabricated in accordance with QualTech dedication plan, with the exception QualTech to perform weld inspection upon receipt
- Commercial Grade Survey report of GE Sensing, MA, dated March 13, 2013 approving it as a supplier of commercial calibration services to calibrate moisture probes and transmitters within the scope of its NVLAP accreditation certificate
- Surveillance report of York /Johnson Controls, dated May 16, 2012 for witness of special fabrication and functional qualification test activities of York Temperature Compressor, P/N RS-124A at Johnson Controls NY facility for QualTech dedication file # CJ1000-1 for Luminant Generation Company PO S07230288632

- Supplier Evaluation report of Alliance Calibration Inc., WI, dated May 22, 2013 approving it as a supplier of commercial calibration services of ACME thread plugs and rings within the range specified by QualTech PO and within scope of Alliance Calibration, Inc., A2LA accreditation certificate

Test Procedures and Reports

- Q1124.0, Environmental Qualification Test Procedure for ATC Timing Relay, Revision 1, dated February 23, 2012
- Q1309.0, Electromagnetic Compatibility Test Procedure for an ABB 27N Undervoltage Relay, Revision 1, dated March 8, 2013
- Q1244.0, EMI/RFI Test Procedure for Honeywell Thermostat, Revision 0, dated October 29, 2012
- QP 1251.0, Electromagnetic compatibility test procedure for an allen-bradley 700-RTC02200U1 timing relay, Revision 1, dated February 22, 2013
- Q1304.1, Electromagnetic compatibility test procedure for a trane model no. PRGCA011BG0A/MOD purge unit, Revision 1
- Q1124.0, Environmental Qualification Test Report for ATC Timing Relay, Revision 0, dated October 9, 2012
- Q1309.0, Electromagnetic Compatibility Test Report for an ABB 27N Undervoltage Relay, Revision 0, dated March 25, 2013
- Q1244.0, EMI/RFI and Fault/Failure Mode Test Report for Honeywell part no.T775b2040 Digital Thermostat, Revision 1, dated January 21, 2013
- Q1251.0, Electromagnetic compatibility test report for an allen-bradley timing relay p/n: 700-RTC02200U1, Revision 0, dated March 11, 2013
- TP-Q1251.0, "Electromagnetic Compatibility Test Procedure for an Allen-Bradley 700-RTC02200U1 Timing Relay," Revision 1, dated February 22, 2013
- SQTS-01-GSQTP, "Generic Seismic Qualification Technical Procedure", Revision 8, May 10, 2012
- Trentec-GSQTP, "Generic Seismic Qualification Technical Procedure", Revision 6, September 22, 2005
- Q1317.0, "Seismic Qualification Test Procedure for Dresden Nuclear Power Station Valve Assembly", Revision 2, June 18, 2013
- S1128.0, "Seismic Qualification Test Procedure for Multiple Items(ASCO Solenoid Valves, Mechatronics Axial Cooling Fan)", Revision1, October 13, 2011
- SEISMIC-001, "Dedication Plan for PROSIG Data Acquisition and Shock Analysis System", Revision 0, May 30, 2013
- Q1235.0, Environmental Qualification Report for Measurement Technologies Current Transducer P/N : A-1-0-1, Revision 1 dated March 21, 2013
- Q1251.0, Electromagnetic compatibility test report for an allen-bradley timing relay P/N : 700-RTC02200U1, Revision 0, dated March 11, 2013
- Q1309.0, Electromagnetic Compatibility Test Report for an ABB 27N Under-Voltage Relay, Revision 0, dated March 25, 2013

5. ACRONYMS USED:

ASME	American Society of Mechanical Engineers
CEVB	Construction Electrical Vendor Branch
CFR	<i>Code of Federal Regulations</i>
CGD	commercial grade dedication

CR	condition report
DCIP	Division of Construction Inspection and Operational Programs
EMI	electromagnetic interference
EMC	electromagnetic compatibility
EPRI	Electric Power Research Institute
EQ	environmental qualification
GME	Green Mountain Electromagnetics
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers
M&TE	measuring and test equipment
MCCB	molded case circuit breaker
MRR	material rejection report
NCR	nonconformance report
NON	notice of nonconformance
NRC	U.S. Nuclear Regulatory Commission
NRO	Office of New Reactors
PO	purchase order
QualTech	QualTech NP
QA	quality assurance
QAM	quality assurance manual
QAP	quality assurance procedure
QC	quality control
RG	Regulatory Guide
RFI	radio frequency interference
TP	technical procedure
TVA	Tennessee Valley Authority