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U.S. Nuclear Regulatory Commission
ATTENTION: Document Control Desk
Washington, D.C. 20555

SUBJECT: Reply to a Notice of Nonconformance cited in NRC Inspection Report No. 99901441/2014-201 dated September 09, 2014

Attached please find our responses and corrective actions taken to address Nonconformances 99901441/2014/201-01, 99901441/2014-201-02 and 99901441/2014-201-03 cited in NRC Inspection Report Number: 99901441/2014-201.

QualTech NP Huntsville Operations is committed to maintain compliance in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix B, "Quality Assurance for Nuclear Power Plants and Fuel Reprocessing Plants" and 10 CFR Part 21, "Reporting of Defects and Noncompliance".

QualTech NP Huntsville Operations appreciates the time and effort of the NRC inspection team and will utilize the information obtained to help continually improve our Quality Assurance Program.

Objective evidence of actions taken can be provided upon request. If there are any questions or comments please contact me.

Sincerely,

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Inspection Report Number: 99901441/2014-201
Reply to Notices of Nonconformance

Nonconformance 99901441/2014-201-01

A. *Criterion III, "Design Control," of Appendix B to Title 10 of the Code of Federal Regulations (10 CFR) Part 50, States, in part, that, "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"*

Contrary to the above, QualTech failed to ensure the design basis/qualification report was correctly translated into the maintenance and installation procedure. Specifically, Section 5.0, "Qualification Maintenance and Installation," of the environmental qualification test report for the 1/2 inch Generation 3 EGS quick disconnect (QDC) electrical connectors states in part that, "the o-ring must be discarded and an new o-ring installed prior to reconnection" whenever the connector is disconnected. However, Section 5.0, "Maintenance and Installation," of the instruction for installation of the QDC, states in part that "it is not mandatory that the o-ring be discarded and a new o-ring installed prior to reconnection." Therefore, if a vendor/licensee did not replace the o-ring prior to reconnection, then the original qualification assumptions would not be bounded.

Response

QualTech NP Huntsville Operations accepts the nonconformance and investigation /corrective action taken is as follows:

The reason for the noncompliance

It was determined after review that the requirement to replace the o-ring was not properly translated into the Installation Instruction EGS-TR-23066-04 due to "human error" by the Project Engineer. It was also determined that the Engineering Verifier did not do an adequate

Inspection Report Number: 99901441/2014-201
Reply to Notices of Nonconformance

technical review as required by the QualTech NP Huntsville Operations Quality Assurance Program.

Corrective action steps that have been taken and the result achieved

a. A further review was conducted to verify if any additional technical documents were affected. Test Reports EGS-TR-23067-01, Revision A and EGS-TR-23068-01, Revision A were found to have the same technical translation error.
b. Technical Documents EGS-TR-23066-04, Revision Original, EGS-TR-23067-01, Revision A and EGS-TR-23068-01, Revision A were revised to correct the error.
c. Training was conducted for all engineering staff on this issue and included Engineering Verifier responsibilities.
d. Notification "QTHuntsville10CFR21-2014-05" was issued on September 22, 2014 in accordance with Title 10 of the Code of Federal Regulations Part 21 to the NRC and all affected customers.

Corrective steps that will be taken to avoid future noncompliances

An extensive training was held with all engineering staff on the proper translation of technical requirements contained in design documents into supporting or subsequent technical documents. The training also stressed the importance of the Engineering Verifier properly reviewing the document to determine technical adequacy.

Date when your corrective action will be completed

All corrective actions are complete.

Inspection Report Number: 99901441/2014-201
Reply to Notices of Nonconformance

Nonconformance 99901441/2014-201-02

B. *Criterion VII, "Control of Purchased Material, Equipment, and Services," of Appendix B to 10 CFR 50 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."*

Contrary to the above, QualTech failed to ensure that the electromagnetic interference (EMI) qualification testing services obtained through Wyle Labs met the requirements of QualTech's purchase orders (PO). PO 4500542184 from PSEG to QualTech required the use of Electrical Power Research Institute (EPRI) TR-102323, revision 2 and/or revision 3 or NRC Regulatory Guide (RG) 1.180, revision 1 to be used for EMI testing of the general electric transient analysis recording system. These revision of the EPRI standards require specific International Electrotechnical Commission (IEC) standards to ensure that the EMI testing be performed to specific criteria and test setup. QualTech's PO 60-07956 to Wyle Labs required the use of EPRI TR-102323 revision 3 to be used. However, Wyle Labs used different versions of the IEC standards than those referenced in the applicable EPRI document. QualTech accepted the Wyle report as-is and failed to evaluate if the differences in the IEC standards conformed or enveloped PSEG's PO requirements specified for the testing.

Response

QualTech NP Huntsville Operations accepts the nonconformance and investigation /corrective action taken is as follows:

Inspection Report Number: 99901441/2014-201
Reply to Notices of Nonconformance

The reason for the noncompliance

It was determined that the QualTech NP procurement document did address the correct revision of the standard (EPRI TR-102323, Rev. 3) but did not include the revision levels for the associated IEC Standards. Since there were no revision levels imposed on the procurement document, the supplier utilized the most current revision level of the IEC Standards. Thus Wyle Labs did not correctly use the revisions referenced in EPRI TR-102323, Rev. 3.

When the technical document was received back from Wyle Labs, it was not properly reviewed to determine if the requirements of the customer's purchase order were met. Since Wyle Labs used different revision levels of the IEC Standards, there should have been a technical justification to determine the adequacy and acceptance of the tests that were performed.

Corrective action steps that have been taken and the result achieved

An equivalency evaluation was completed and determined that the tests performed by Wyle Labs met the requirements imposed by the customer's purchase order. Documentation of the equivalency evaluation was documented in QualTech NP Huntsville Operations Test Report EGS-TR-23050-0590-03, Revision Original.

Corrective steps that will be taken to avoid future noncompliances

Training was conducted with all engineering staff to address the importance of imposing specific document revisions on all technical documents and supplier purchase orders. Training also stressed the proper review of technical documents, both internally and externally generated, to determine technical compliance.

Date when your corrective action will be completed

All corrective actions are complete.

Inspection Report Number: 99901441/2014-201
Reply to Notices of Nonconformance

Nonconformance 99901441/2014-201-03

A. *Criterion XI, "Test Control," of Appendix B to 10 CFR 50 states in part that, "A test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents. Test results shall be documented and evaluated to assure that test requirements have been satisfied."*

Contrary to the above, the team identified five examples where test requirements were not satisfied and there was no documentation of evaluations for these test deviations. Specifically, QualTech provided test report EGS-TR-HC1741-01 to Rockbestos-Surprenant Cable Corporation (RSCC) for a loss of coolant accident/design basis accident (LOCA/DBA) environmental qualification test of Firewall III insulated wire/cable as follows:

- *Electrical current load applied to an RSCC electrical cable during harsh environment qualification testing did not maintain the specified magnitude of 20 amps for the duration of the test. Electrical current decreased to a value of 17.8 amps at 480 seconds and stayed below the required current for the remainder of the test duration. The RSCC test plan stated that samples must be electrically energized at their rated voltage and current as described by the National Electric Code-2008 which matched QualTech's test report specifying a rated current of 20 amps, however no deviation report or evaluation was done despite the lower value.*
- *Temperatures applied during a harsh environment testing of RSCC electrical cables remained below the required minimum values at all sensor locations during the first 10 seconds. The measurements recorded by one of the three thermocouples did not reach the required peak temperature of 441 °F until 90*

seconds had elapsed as compared to a required peak at 10 seconds. The measurements by another thermocouple never reached the required peak temperature at all and stayed around 430 °F.

- *Environmental pressure recorded by pressure sensors during the LOCA/DBA test dropped below required minimal values on several instances during the first 400 seconds. At 115 seconds, the lowest measured pressure was about 62 psig where the minimum allowed was 64 psig and at 315 seconds, the lowest measured pressure was about 63 psig where the minimum allowed was 70 psig.*
- *Photographic records appended to the QualTech test report showed that harsh environment testing of RSCC cables caused extensive cracking and segmentation of some of the cable jackets. In addition, the jacket on one specimen exhibited gross failure from apparent melting. However, the test report conclusion stated that no anomalies had occurred and that degradation to the test specimens was limited to "crazing and cracking." The RSCC test plan stated that qualification of the electrical cable was based upon an assumption that jacket does not crack.*
- *Additionally, functional testing of electrical connectors for 8-inch squib valves (Westinghouse test specimen "LP01") did not impose the specified magnitude of 3.7 amps for electrical pulse current during the baseline test. The actual current applied was 3.57 amps. For the post-thermal aging test, the actual current applied was 3.63 amps. For the post-radiation aging test, the actual current applied was 3.53 amps. The NRC inspection team noted that Section 3.3 of Westinghouse test plan APP-PV70-VPH-001 stated that the squib valve design employed a 3.7 amp current to actuate the igniters.*

Inspection Report Number: 99901441/2014-201
Reply to Notices of Nonconformance

Response

QualTech NP Huntsville Operations accepts the nonconformance and investigation /corrective action taken is as follows:

The reason for the noncompliance

After review of contract requirements and discussions with the Project Engineer, several determinations were made. It was incorrectly assumed that we only needed to document anomalies in the test data without writing formal NOAs. This assumption was based on the fact that we were only conducting a portion of the required testing with the customer responsible for all remaining testing. Also, the customer was responsible for test completion and interpretation of results. Additionally, the customer was present during the entire testing and witnessed all anomalies. Results, including anomalies, were documented in the QualTech Test Report.

It was determined that the above assumptions were in violation of QualTech NP Huntsville Operations SOP 15.1, Rev. H, Section 6.2. NOAs should have been written.

Corrective action steps that have been taken and the result achieved

a. NOAs were generated to formally document all deviations/anomalies associated with the RSCC LOCA test in accordance with QualTech NP Huntsville Operations SOP 15.1, Revision H.
b. Test Report EGS-TR-HC1741-01 was revised to incorporate the NOAs. The revised report was submitted to the customer.

Inspection Report Number: 99901441/2014-201
Reply to Notices of Nonconformance

Corrective steps that will be taken to avoid future noncompliances

All engineering and lab inspection/test personnel were trained on the requirements of QualTech NP Huntsville Operations SOP 15.1, Rev. H. This included instances that occurred requiring the generation of a Notice of Anomaly. The training also emphasized the importance of generating a Notice of Anomaly to officially document any deviation/anomaly even if a customer witness is present. Training reemphasized that NOAs shall be written in a timely manner as required by QualTech NP Huntsville Operations SOP 15.1, Section 6.2

Date when your corrective action will be completed

All corrective actions are complete.