

# RTP's NUCLEAR QUALITY ASSURANCE PROGRAM

RTP operates under one quality program, whether you purchase products that are commercial grade, nuclear safety-related or industrial safety compliant (IEC 61508). Our quality assurance program complies with the Code of Federal Regulation, Title 10, Part 50, Appendix B (10 CFR 50 Appendix B), *Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants*. Below are highlights of how our program meets the sections of 10 CFR 50 Appendix B.

### Organization

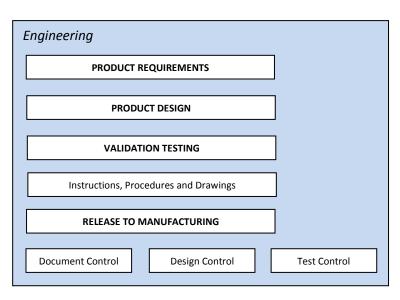
RTP management is responsible for establishment and proper execution of our quality assurance program. The program is under the direct control of the President of the company as assisted by our Director of Safety Products, our Quality Assurance Associate, and the many people who perform the in-process inspections of the products. All persons performing quality assurance functions have the required authority and organizational freedom, including sufficient independence to ensure that safety considerations are a priority over cost and schedule.

# **Quality Assurance Program**

Our program meets all requirements of 10 CFR 50 Appendix B and is documented by written implementing procedures. These procedures document the major organizations participating in the program, together with the functions of each organization. The program provides control over activities affecting the quality of the products including verification of quality by inspection and test.

#### **Design Control**

RTP's engineers ensure that regulatory and specific customer requirements are correctly translated into specifications, drawings, procedures, and instructions for each product we make. These engineers select and review the suitability of application of materials, and processes that are used. They ensure that design verification tests are performed to verify or check the adequacy of all designs and that qualifications testing of



prototype units are performed under the most adverse design conditions. Our engineers also review and approve the initial release and any revision of design documents including securing customer approval if there are to be any deviations from a requirement.

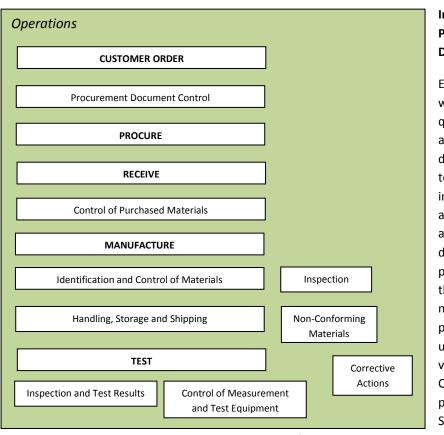


#### **Document Control**

The managers of our engineering and manufacturing departments control the documents that are used. Any changes to the documentation must first be approved through our design control process (ECO), which includes review and approval of our President, before being released for use by the company.

#### **Test Control**

Once manufactured, all products are tested in accordance with approved, written test procedures, which incorporate the requirements, and acceptance limits contained in applicable design documents. Documentation of the test results is provided along with all nuclear safety-related orders.



# Instructions, Procedures and Drawings

Engineering is tasked with ensuring that quality requirements are included on the design drawings and test procedures, including the acceptance criteria for all products. These drawings and test procedures are used throughout the manufacturing processes and are under revision control via our Engineering Change Order (ECO) process. RTP has no Special Processes that

would require specialized training, procedures or certifications.

# **Procurement Document Control**

Our purchasing manager is primarily responsible for assuring that applicable regulatory requirements, design bases, and other necessary requirements established by our engineering and quality personnel are included or referenced in purchase orders for materials or services. Any special requirements for nuclear safety-related purchase orders are documented in our purchasing procedures. Our President approves all purchase orders for items or services supplied as nuclear safety-related.



# **Control of Purchased Material, Equipment and Services**

Suppliers are qualified and placed on our Approved Vendors List (AVL) so that we can ensure that only high quality materials are used in our products. Our suppliers provide Certificates of Conformance, referencing the appropriate materials and quality standards for the items being purchased. As we do business with these qualified suppliers, we monitor their quality performance and the level of monitoring that we use is consistent with the importance and complexity of the materials being purchased. Inspections are carried out on all purchased materials and once the materials are in our factory, our personnel control them.

#### **Identification and Control of Materials, Parts, and Components**

RTP uses a work order routing traveler system as one of the product control and tracking tools during our manufacturing process to prevent the use of incorrect or defective material, parts, and components. As the product moves from stage to stage, the product and the traveler are stamped with a unique permanent mark indicating that it has successfully met the requirements of each stage. Nuclear safety-related products are also marked with a "NEQ" prefix to differentiate them from our commercial grade products. To ensure traceability, we also serialize all nuclear safety-related products.

As an example of the level of traceability we employ for metals, all solder used in our nuclear safety related products could be traced back to the supplier lot number. Furthermore, to ensure that the quality of the solder remains good as it is being applied to our printed circuit boards and electronic components during manufacturing, we sample the solder during use and send those samples to an independent lab for analysis. The sample number is also noted on the work order traveler for the products that were produced with that solder thus ensuring traceability.

#### Inspection

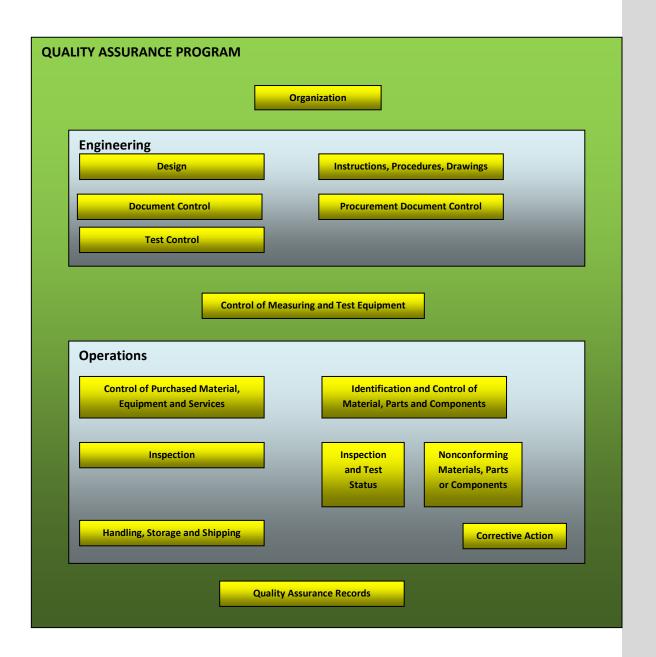
Our quality program includes provisions for inspection of all activities affecting quality to verify conformance with our documented instructions, procedures, and drawings. In the manufacturing area, a second person inspects each person's work operation and the supervisors and managers and our quality personnel monitor the work of all in the manufacturing area.

# **Control of Measuring and Test Equipment**

Measuring and test equipment are used throughout our manufacturing operations and procedures are in place to ensure that these items are controlled and calibrated at the required intervals to maintain accuracy within the necessary limits. Measurement and test equipment are sent to a qualified third-party lab for calibration. This lab is audited on a regular schedule to ensure that they are performing their calibration work in accordance with their quality procedures and that the measurement standards that are being used are traceable to a recognized standards bearer such as National Institute of Standards and Technology (NIST) or American Association for Laboratory Accreditation (A2LA).



Overview of RTP implementation of 10 CFR 50 Appendix B.





# Handling, Storage and Shipping

RTP carries out its manufacturing work in a controlled clean factory environment. In addition, our personnel employ appropriate anti-static techniques in handling our electronic products to prevent damage or deterioration. Care is taken to ensure that foreign materials are not introduced at any point in any of our processes.

# **Inspection and Test Status**

As noted earlier in *Identification and Control of Materials, Parts, and Components*, RTP utilizes a work order traveler tool, which documents the required manufacturing, inspection and test processes for each product. The traveler follows the product throughout each process. Markings are applied to the product and traveler as they pass through the manufacturing, inspection and test stages. Nuclear Safety Related products are also given a unique serial number to link the product to its traveler and Quality Control (QC) activities. In addition to the in-process quality checks, our QC personnel review the stamps on the finished product and its travelers to ensure that the product has satisfactorily passed the required inspections and tests.

# **Nonconforming Materials, Parts or Components**

Our procedures prevent nonconforming items from being inadvertently used in the manufacturing process. In addition, there are various inspection and testing points in our manufacturing process and at any of these points, non-conforming work-in-progress can be identified, documented, segregated, dispositioned (rejected, repaired, or reworked) and the appropriate persons or organizations notified. As part of our compliance with Code of Federal Regulations, Title 10, Part 21 (10 CFR 21), non-conforming conditions are reviewed as to their impact on safety and if a defect is found, the regulators and those affected can be quickly notified.

#### **Corrective Action**

Our quality program not only includes provisions for identifying conditions adverse to quality such as non-conformances, but it also includes measures to determine the cause of the condition and to put corrective actions in place to prevent the condition from re-occurring. These reviews are documented and reported to the appropriate levels of management.

# **Quality Assurance Records**

RTP maintains sufficient records to provide evidence of our activities related to product quality. These quality records are retained for various time durations depending on their importance to safety as per our records retention program. Records are maintained in printed and electronic forms.

#### **Internal Audits**

RTP carries out periodic audits to verify compliance with all aspects of our quality assurance program and to determine the effectiveness of the program.



# **About RTP**

Founded in 1968, RTP Corp. is a developer and manufacturer of high-performance critical control and safety systems.

Markets for RTP Corporation's products include process control and safety systems, and nuclear power plant systems.