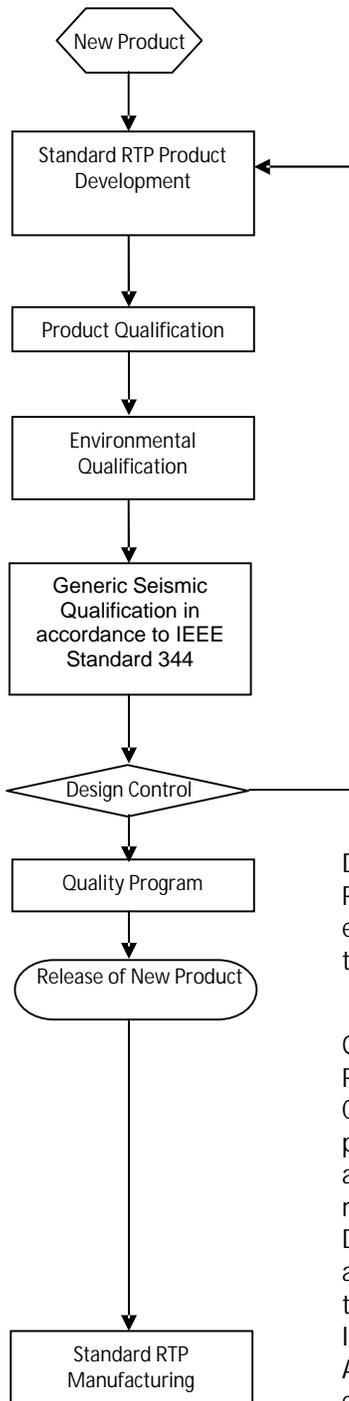




# Nuclear Safety Related Products



## General

In addition to the industrial safety products supplied in accordance with IEC 61508, RTP also supplies product that are qualified to Class 1E (safety-related) standards for the nuclear industry. The following is an example of how we go about qualifying these products under our nuclear-grade quality program and also highlight some of the key components of this quality program.

## Product Qualification

RTP qualifies its nuclear Class 1E (safety-related) products using the methods in IEEE Std. 323 Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations. As part of the qualification process, we demonstrate and document the ability of equipment to perform safety function(s) under applicable service conditions of a typical nuclear plant's mild environment including design basis events such as earthquakes.

## Environmental Qualification

The RTP products are tested under extreme service conditions including peak temperatures, humidity, voltage, etc to ensure that they can carry out their design function when required. This testing is performed by a combination of third party labs and our in-house staff as part of our design validation testing. Testing levels are consistent with the applicable environments in EPRI TR-107330 Generic Requirements Specification for Qualifying a Commercially Available PLC for Safety-Related Applications in Nuclear Power Plants and with IEC 61131-2 Programmable controllers – Part 2: Equipment requirements and tests.

## Design Control

RTP's Class 1E program includes stringent design control procedures including engineering review of all proposed changes. The review also gives consideration to the safety impact of the proposed changes on previously supplied products.

## Quality Program

RTP's quality program is based on 10 CFR Part 50 Appendix B, Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants that is the same program followed by nuclear power plants. This quality program governs the activities in all facets of our company from engineering to qualification to manufacturing. Our program also complies with 10 CFR Part 21 Reporting of Defects and Noncompliance with regard to notifying customers and regulators of any product defects. The US NRC deems the 10CFR50 Appendix B quality program to be superior to other commonly used industrial quality programs such as ISO9001. For example, the quality requirements for a product produced under an Appendix B program are always linked to the product's importance to safety and compliance testing for that product is performed under the most adverse design conditions.

### Commercial Grade Dedication

RTP purchases commercial grade components and dedicates them for use in our Class 1E products. Our commercial grade dedication procedures are based on EPRI NP-5652 Guideline for the Utilization of Commercial Grade Items in Nuclear Safety Related Applications. As part of this process, critical characteristics are identified for the components and among other things; special tests are performed to ensure that these commercial grade items are suitable for safety related applications.

### Seismic Qualification

In the environment in the nuclear plant where plant monitoring or control equipment is installed, seismic events are typically the design basis event; therefore our products must be tested to prove they can withstand these events. Seismic qualification is performed in accordance with IEEE Std 344 Recommended Practice for Seismic Qualification of Class 1E Equipment for Nuclear Power Generating Stations to the plant-specific seismic vibrations associated with anticipated operating basis earthquakes (OBE) and safety shutdown earthquakes (SSE). An accredited third-party laboratory performs type testing of the RTP product for seismic immunity. These labs typically expose the RTP product to greater than 16 G's of acceleration force over a wide range of frequencies. This far exceeds the magnitude of the largest recorded earthquake.

### Non-Conforming Items & Corrective Actions

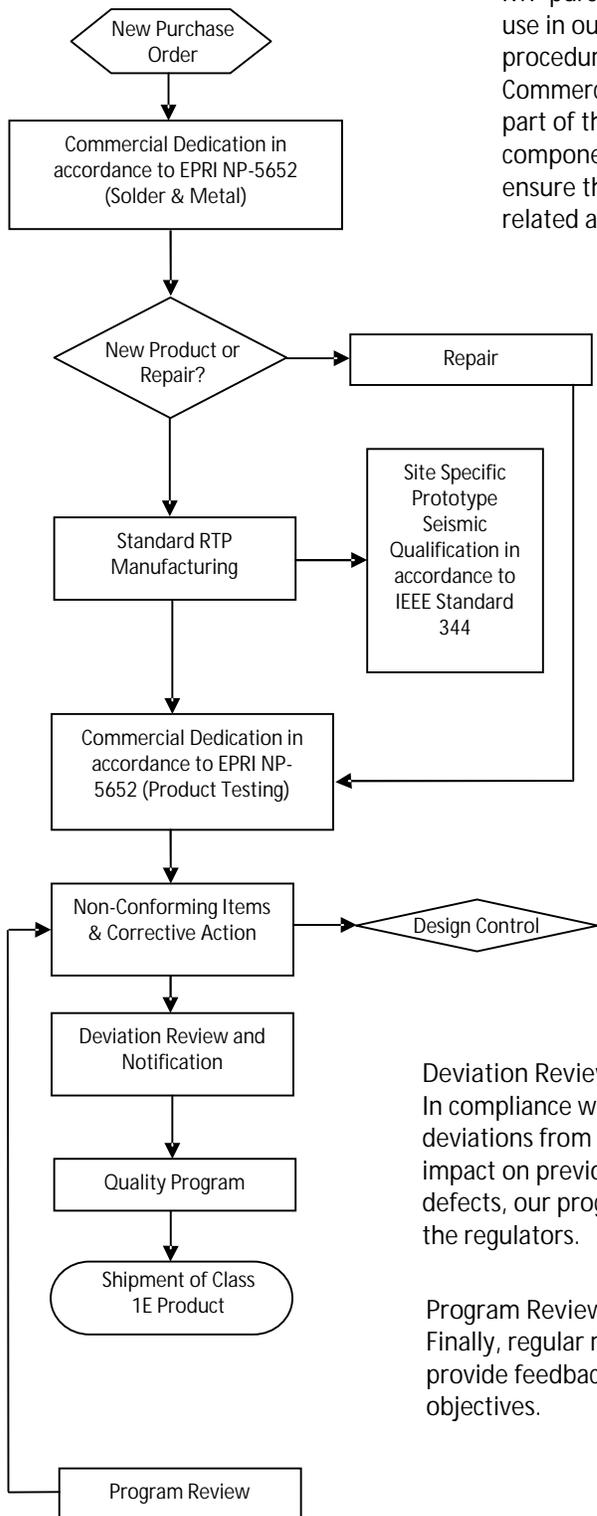
Our program includes procedures for conducting reviews of non-conforming items as well as developing corrective actions to prevent reoccurrence of any non-conformance identified.

### Deviation Reviews and Notification

In compliance with 10 CFR Part 21 Reporting of Defects and Noncompliance, deviations from a technical requirement are reviewed as to their potential impact on previously supplied products. If any deviations are found to be defects, our program includes provision for notifying affected customers and the regulators.

### Program Review

Finally, regular reviews are an important part of our quality program as they provide feedback as to how well we are doing at meeting our quality objectives.



## 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.

RTP offers a wide range of rugged hardware and a complete suite of software for industrial control solutions that include seamlessly redundant and triplicated systems for mission-critical applications.