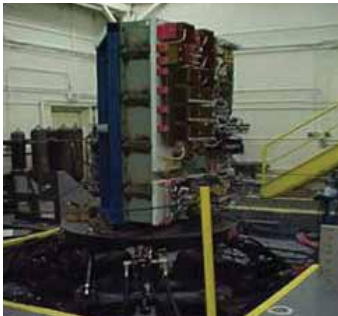


# NTS Energy Services Spotlight: Nuclear Power Products

Specialists in Equipment Qualification | Commercial Grade Dedication Solutions



NTS has served the needs of the nuclear power community for over 40 years



Multiple Seismic/Vibration Test Bays



Wide Selection of Climatic Chambers

## World Wide Nuclear Services

For fifty years, NTS has been a world leader in Product Qualification and Testing Services. We are a single source for a full range of integrated engineering solutions, product testing, standards compliance, project management and managed services. NTS provides cost effective programs to meet your requirements for the full array of equipment qualification, commercial grade dedication, obsolescence solutions, engineering analysis, component supply and field services. Globally accredited by leading regulatory agencies, utilities and supplier organizations. NTS services are provided under our NUPIC and NIAC audited 10CFR50 Appendix B and NQA-1 quality program.

## Equipment Obsolescence Solutions

As part of our core competency, NTS can assist in selection of new nuclear grade components, their qualification and if needed, their dedication for safety related applications. We currently offer qualified replacements for many electrical and mechanical safety-related components that are no longer available from the OEM. NTS certifies equipment for Class 1E installation for mild or harsh environments to IEEE323 and IEEE344. These components include instrumentation, digital recorders, batteries, gauges, motors, panels, fuses, relays, transmitters, transformers, switches and chillers from a multitude of manufacturers. NTS also provides engineering and test evaluations to determine the best potential replacement solution.

## EPRI NP-5652 - Nuclear Dedication

Our Class 1E safety-related parts and equipment supply program for the nuclear industry is tailored to comply with nuclear industry requirements of EPRI NP-5652. In order to provide complete documentation and demonstrate product capability and compliance, we utilize a combination of engineering, quality assurance, procurement, equipment qualification and form/fit/function evaluation to assess the components critical characteristics. NTS staff meets ANSI N45.2.6 Level II Inspector requirements. NTS provides technical evaluations, critical characteristics and safety class determinations.

## Software Verification & Validation

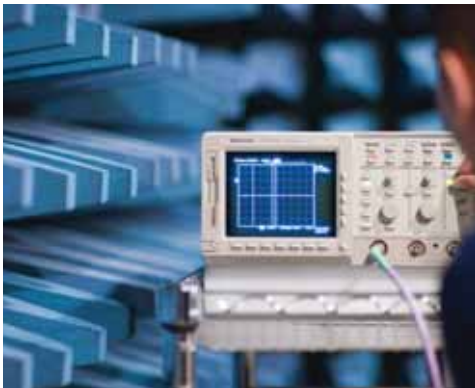
NTS conducts software/code verification and validation services on digital equipment that contains a microprocessors (software code). The process involves a review of the code development and change control process as well as the functional verification of various portions of the software by device testing. Examples of our plant experience includes recorders, controllers and chiller control modules.

## About NTS

National Technical Systems is a trusted partner that helps organizations to access domestic and international markets. We are your single source for a full range of integrated engineering solutions, product testing, standards compliance, project management, and managed services. Globally accredited by leading regulatory agencies, NTS can provide cost-effective programs to meet your requirements — at your site, or at one of our many US or international facilities. NTS is the nation's largest independent standards compliance and product testing company, serving companies within the aerospace, defense, automotive, wireless and telecommunications, electronics, energy, medical device, software, and hardware markets.



Nuclear steam accident, LOCA, HELB to 600 °F / 300 psig



Extensive EMI and RFI testing, mapping and analysis expertise

## Nuclear Qualification Seismic/Environmental - Testing/Services/Specifications

As part of the largest group of independent test laboratories in the country, NTS offers the broadest range of nuclear environmental testing using our State-of-the-art facilities and capabilities for safety-related qualification and dedication. Our services include:

- ▶ Equipment Qualification to IEEE 323, IEEE 382, IEEE 383, IEEE 572, IEEE 649
- ▶ Qualification testing to EPRI TR-107330
- ▶ Evaluation & Acceptance of Commercial Digital Equipment to EPRI TR-106439
- ▶ Seismic simulation to 35,000 force-lbs, single axis, dependent biaxial, and independent triaxial to IEEE 344
- ▶ Vibration aging and fatigue studies, up to 40,000 force-lbs and Sine-Beat Testing
- ▶ EMI / EMC testing and analysis to EPRI TR-102323 and USNRC 1.180
- ▶ Software Validation & Verification to IEEE standard 7-4.3.2
- ▶ Materials identification and testing
- ▶ Mechanical aging
- ▶ Failure Analysis
- ▶ Dynamics, acoustics, shock and acceleration
- ▶ Normal or accident radiation exposure
- ▶ Reliability simulation, and evaluation (MTBF)
- ▶ Thermal aging testing and analysis
- ▶ Vacuum testing, leak detection
- ▶ Climatic: temperature, humidity, salt, sand, dust, solar, radiation and fungus
- ▶ Finite Element Analysis using ANSYS
- ▶ Nuclear steam accident, LOCA, HELB to 600 °F / 300 psig

## EMI & RFI Testing and Analysis

As an industry leader in EMI & RFI testing NTS conducts programs both in-house and on-site to the latest nuclear standards. Utilizing the largest shielded enclosures available and state-of-the-art equipment, NTS provides the full suite of EMI/EMC capabilities. NTS engineers also play a critical role in developing standards from In-Situ Mapping that forged the boundary conditions on the original EPRI TR-102323 specification to today where we participate on the EPRI committee. As the industry continues to digital upgrade equipment, EMI testing is increasingly important.

## NTS 812 Relay

NTS offers a line of advance solid-state AC and DC timing relays. This is a direct one-for-one replacement for older, less accurate pneumatic timers in both Safety-Related and Non-Safety versions. By utilizing a solid-state design, NTS provides a timing relay that is far more accurate, reliable and maintenance free.

## NTS Product Supply Partners

Working with our various supply partners, NTS provides a vast array of pre-qualified and dedicated components for immediate use in plant applications.

### Yokogawa Corporation

- ▶ DX200 with /S83 option, DX1000N/2000, DX364 Digital Data Recorders, and YS1700 Controllers

### Gems Sensors & Controls

- ▶ Level Sensors, Transmitters and Receivers

### Enertork Actuators

- ▶ Commercial and safety-related actuators



**NTS**

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