

Seismic Analysis

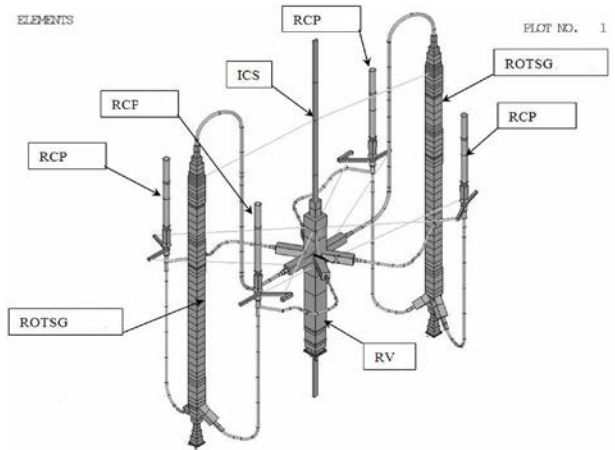
Overview

Seismic analysis of critical nuclear plant components has been a requirement for many years, however there has been a renewed focus on the importance of seismic assessments following the events at Fukushima in Japan and North Anna in the US. BWXT's seismic analysis capabilities can be used to requalify existing components and systems to ensure they meet acceptance standards using current industry guidance and seismic response spectra.

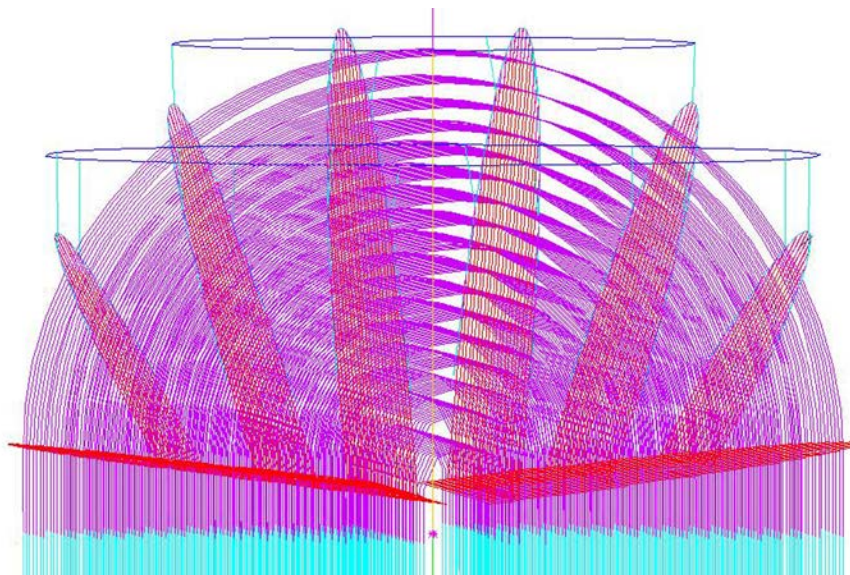
Applications

The seismic analysis capabilities of BWXT can benefit customers in a variety of industries with timely and high quality analyses for:

- Requalification of existing plant structures and systems for operating, design and beyond design-basis seismic events
- Seismic qualification of existing plant structures and systems for equipment upgrades and replacement
- Piping systems seismic qualification
- Seismic qualification of new equipment
- Measurement, control, and auxiliary equipment and systems seismic qualification



ANSYS® Model of BWXT PWR reactor coolant system



3-D model of steam generator and internals for seismic analysis

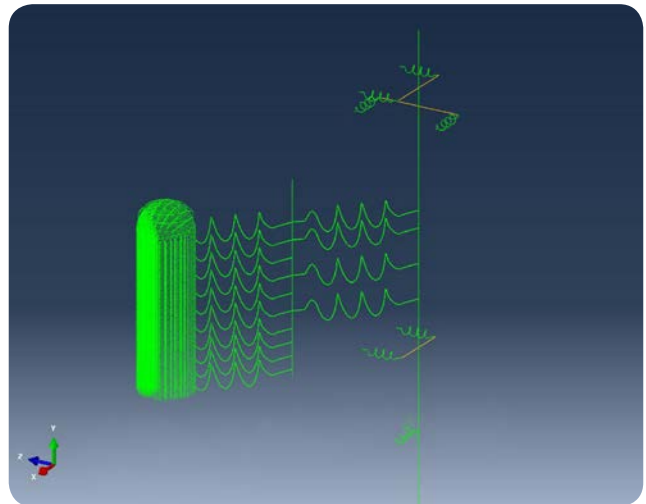
Capability and Tools

Over many years of work in the nuclear industry, BWXT has developed extensive seismic analysis expertise in the areas of:

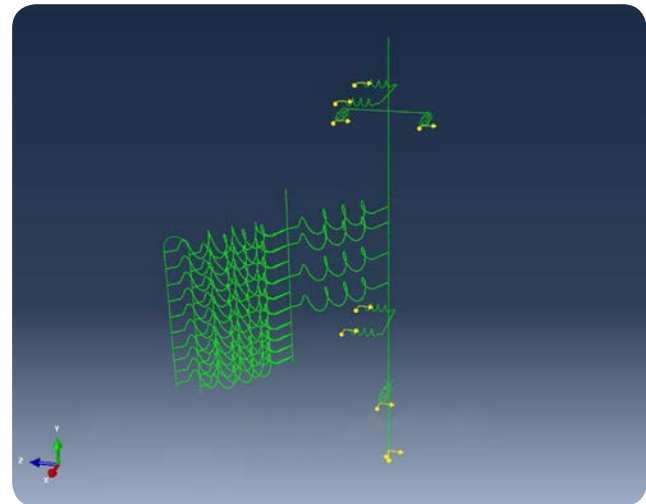
- Time history analysis
- In-structure (shell, floor and cabinet) response spectra generation
- Response spectrum method for coupled and un-coupled components

BWXT engineers have a comprehensive and in-depth knowledge of seismic analysis requirements and techniques set forth in US and Canadian Regulatory Documents, such as the ASME Boiler and Pressure Vessel Code, the ASME Piping Code, USNRC Regulatory Guides and the CSA Seismic Analysis Standards.

BWXT has a variety of engineering software packages for performing seismic analysis. ANSYS® and ABAQUS™ are routinely used for model development and analysis, while MATLAB™ is used for developing custom programs, and for model conversion and/or re-creation from other engineering programs (e.g. STRUDL™, ADLPipe, ME101™).



Seismic time history analysis of steam generator and its internals under single base excitation



Seismic time history analysis of steam generators and its internals under multiple base excitation

NUCLEAR ENERGY

GOVERNMENT SERVICES

ADVANCED TECHNOLOGIES

BWXT Canada Ltd. is a subsidiary of BWX Technologies, Inc. (BWXT). Headquartered in Lynchburg, Va., BWXT is a leading supplier of nuclear components and fuel to the U.S. government; provides technical, management and site services to support governments in the operation of complex facilities and environmental remediation activities; and supplies precision manufactured components and services for the commercial nuclear power industry.

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