



TC2S1005  
CAESAR II Statics  
5 Days

Agenda

CAESAR II Training  
January 13, 2023

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Hexagon PPM  
305 Intergraph Way  
Madison, AL 35758

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## Day 1

Introduction to CAESAR II Interface

Setup and Units File Creation

F = Kx Example

- Model Input
- Load Case Editor
- Hand Calculation
- Output Review

Theory and Development of Pipe Stress Requirements

- Discussion/Presentation of basics of pipe stress, including basic stress concepts, failure theories and development of code equations

PIPE1 Exercise

- Model Input
- Error Checking
- Load Case Review
- Results Review
- Add a New Material to the Database

Support Location Exercise

- Where to locate supports?
- Adding Supports to model
- Adding Spring Hangers
- Convert a B31.3 job to EN 13480

## Day 2

Turbine Piping Exercise

- Further modelling practice
- Combining multiple models
- NEMA SM23 Nozzle Loads

Manifold Piping Example

- B31.3 2014 Edition – Alternate Sustained Load Case
- Further modelling practice
- Multiple Operating Conditions and Load Cases
- API610 Pump nozzle analysis

Improving the Accuracy of Code Calculations

- Well known errors in SIFs
- Flexibilities
- Sustained Stress Indices
- ASME B31J-2017
- PIPE EN 13480 – B31J exercise

Valve Model Exercise

- Sizing and modelling an Expansion Loop
- Generation and customization of reports
- ISOGEN Stress Isometrics

## Day 3

### Tutor Exercise

- Nozzle Flexibilities
  - WRC297 derived nozzle Flexibilities
  - FEA Derived Nozzle Flexibilities
- Structural Modelling
- Expansion Joint Modeler

## Days 4 and 5

### FRP Example

- Basics of Fibreglass Piping Analysis
- CAESAR II's Orthotropic Model for Piping Systems
- Static Seismic Analysis using ASCE 7
- Load Case Setup

### Buried Pipe example

- B31.8 design Code
- Buried Pipe Modeller – how it works
- Burying a pipeline
- Fatigue analysis

### Riser Example

- Jacketed Pipe modelling
- Wind and Wave loads
- Hydrodynamic Theory in CAESAR II
- Hydrodynamic Input

### Static Equivalent Fluid Hammer

- Occasional Load definition
- Correct Load Case Setup