PIPE STRESS ANALYSIS

INTRODUCTION:
- Objectives & Definition
- Information Required
- PIPING Loads - Static & Dynamic
- Classification of Loads
- Solutions for PIPING Loads
- Static & Dynamic Analysis
- Forces, Moments & Stress Calculations
- Requirements of ASME B 31.3

DESIGN & PIPE SPAN CALCULATIONS
- Span limitations based on Stress, Deflection & Natural Frequency
- Selection of Supports
- Location of Supports and Restraints
- Allowable Pipe Span Calculations
- Suggested Pipe Support Spacing
- Pipe Span Reduction factor for Elbows, Concentrated Loads etc

ASME B 31.3 CODE EQUATIONS
- Thermal Expansion Stress - Se and Code
- Stress Range Reduction Factors - F
- Bending & Torsional Stress
- Formal Analysis Requirements
- Inplane & Outplane Bending Moments
- Stress Identification Factors - SIF
- Calculation of Thermal Expansion
- Cold Spring for pipe Stress Analysis

SUSTAINED LOADS - INTERNAL PRESSURE & LONGITUDINAL STRESSES
- Theories of Failure for pipe Stress Analysis
- Stresses acting in Pipe due to internal Pressure
- Sustained Loads Qualification
- Analyzing Vibrating Pipe for pipe Stress Analysis

SOFTWARE’S
- Span limitations based on Stress, Deflection & Natural Frequency
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DETAILING:
- Nozzle Thermal Growth Calculations - pumps, vessels, heat exchangers
- Modeling of PIPING elements & isometrics - Bends, Reducers, Valves, Loops
- Performing Static Analysis
- Modifying Load Cases
- Hanger Selection
- Set up of Wind Load Cases
- Set up of SUS, OPE, EXP, HYD, HGR, & OCC loads
- Load Case Editor
- Viewing Reports
- Equipment Nozzle Load Qualifications
- Coding technique of Vessel PIPING includes both PIPING and vessel coding in Caesar II
- Local vessel flexibilities
- Evaluation of local vessel stresses
- Practical Examples - Input, Analysis & Redesign

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