Inspection, Lifetime Monitoring and Maintenance of Pipework Supports

Project Objective

The inspection, lifetime monitoring, and maintenance of pipework supports are critical components in ensuring the safe and reliable operation of nuclear power stations. Pipework supports are subjected to various operational stresses and environmental factors over time, leading to potential degradation, such as creep, thermal ageing, and fatigue. This project details how Kinectrics comprehensive approach enabled long-term safety and operational efficiency for pipework supports through targeted inspections, monitoring, and strategic maintenance.

Project Scope:

Kinectrics involvement in this project spanned a comprehensive inspection, monitoring, and assessment strategy, focused on:

- Conducting plant surveys and audit walk-downs during key operational phases.
- Recording and comparing pipework positional movements against historical and design data to detect trends or anomalies.
- Evaluating whether pipework systems will remain within safe operational limits throughout the station's lifetime.
- Providing recommendations for remedial actions, further analysis, or fitness-for-purpose justifications to extend operational life without unnecessary repairs or shutdowns.

Location: United Kingdom

Technical Approach

Our method is grounded in a systematic approach to both inspections and ongoing monitoring of pipework supports. Key stages included:

1. Plant Surveys: Conducted under normal hot operating conditions, during cold shutdown, and post-return to service. These surveys enabled the identification of positional changes in the pipework supports.

2. Audit Walk-downs: Detailed inspections to assess the physical condition of pipework supports and to record deviations from their original design specifications.

3. Data Comparison: Positional movement data was compared with both historical trends and design predictions to ensure that stress levels remained within operational limits prescribed by pipework codes.

4. Trend Monitoring: Long-term monitoring helped identify gradual load losses in both variable and constant effort supports due to environmental factors, allowing proactive interventions before failures could occur.

Value Added Results

Our integrated approach to the inspection and monitoring of pipework supports ensures that any degradation is identified early, allowing for well-informed maintenance planning and effective risk mitigation. This proactive strategy significantly reduces the likelihood of structural failures, prolongs the operational life of the pipework systems, and helps avoid costly unplanned outages. By using precise data comparison and trend analysis, Kinectrics enables nuclear stations to maintain safe, reliable operations for extended periods.