



Failure & Root Cause Analysis

Tetra Engineering offers failure and failure root cause analysis services to owners and operators of thermal power plants. Root cause failure analysis provides an essential ingredient to effective maintenance programs, failure prevention and risk mitigation, and management of plant and equipment aging.

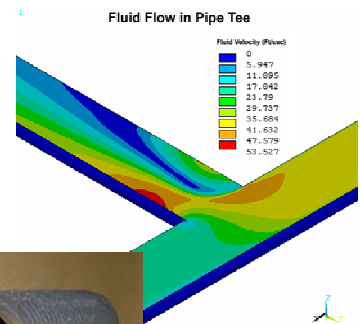
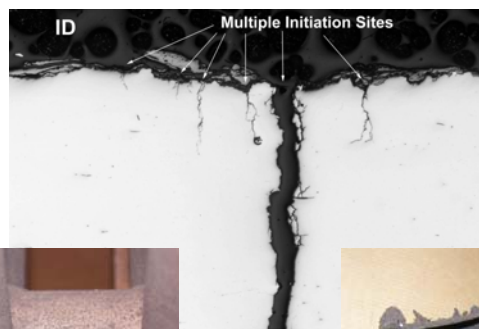
Tetra can call on an interdisciplinary team of accredited experts in a variety of areas such as metallurgy, corrosion and thermodynamics to support the analysis, which can involve:

- Visual Examination and Macro Photography
- Ultrasonic Testing
- Radiography
- Metallography
- Fractography
- Chemical Analysis
- Tensile and Fatigue Testing
- Hardness Tests
- Scanning Electron Microscopy (SEM)
- Energy Dispersive Spectroscopy (EDS)



Where necessary, background information is collected in the field to document the failure location, collect samples, interview personnel, and obtain historical operating data.

To complement the testing, finite element or thermal performance models of the component or system can be constructed to fully quantify stresses, fluid velocities and temperatures.



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