Quest Integrity™
A TEAM Company

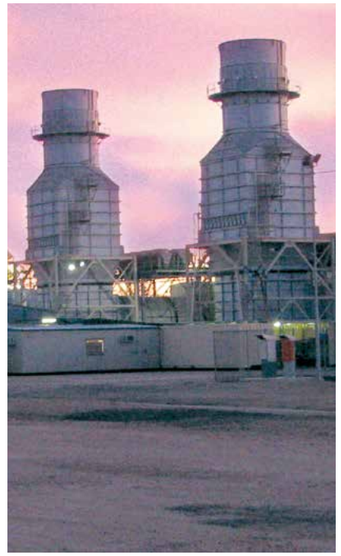
CHALLENGE CONVENTION

Asset Management of Turbomachinery

+ GAS TURBINES
+ STEAM TURBINES
+ COMPRESSORS AND EXPANDERS
+ PUMPS
+ GENERATORS

EFFECTIVE MANAGEMENT OF TURBOMACHINERY

Effective integrity management of turbomachinery is critical to obtaining maximum life value and ensuring safety and compliance in the oil and gas, refining, chemical and power industries. Quest Integrity understands the significance and complexity of turbomachinery operating regimes and environments, and how these impact on reliability and component lives. Our wide range of asset integrity management services are aimed at delivering maximum life value through effective condition assessment, inspection planning, structural integrity and engineering risk management.



Root Cause Analysis

Diagnosis of reliability issues and equipment failures provides for optimized solutions. Quest Integrity's specialist engineers and metallurgists have extensive experience in conducting comprehensive root cause failure analysis on rotating equipment. Our experts assess operational and maintenance effects, manufacture and design, utlizing materials expertise to identify the root cause of failure and make recommendations for future service.

In addition to providing detailed technical explanations and supporting evidence for cause, Quest Integrity can also make recommendations to eliminate defects in design and operational practices to prevent the recurrence of similar failures. Services include:

+ Component condition assessment
+ Detailed metallurgical failure assessment to identify damage mechanisms
+ High resolution electron microscopy and chemical analysis
+ Review of inspection and operation history, including data trending
+ Fitness-for-service assessments and \design reviews
+ High temperature mechanical testing
+ Critical stress analysis and fracture mechanics.

Life Management and Condition Assessment

Based upon many years' research, experience and an understanding of the performance of materials and coating systems, we provide specific advice on material condition related to degradation from chemical, mechanical and temperature exposure.

Inspection Services

Quest Integrity actively researches and applies state-of-art NDT technologies to capture higher quality, repeatable data with increased inspection coverage.

+ **Eddy current inspection of root fixings**
+ **On rotor end ring inspections**
+ **Phased array ultrasonic testing**
+ **Time of flight diffraction**
+ **Remote Digital Video Inspection (RDVITM)**
+ **Vibration analysis**
+ **Off- and on-site condition assessment of components**

We focus on determining the rate at which components degrade within a particular operation. These rates are relatively unique to each individual machine based upon its distinct operational profile.

It is possible to:

+ determine the remaining life of components, including rotors, and provide safe life extension strategies
+ assess suitability for repair or refurbishment of strategic components
+ calculate the risks associated with extended operation or deviation from normal practice.

Outage Support and Extension of Outage Intervals

Reduce costs and downtime by safely extending the intervals between planned outages. Our life management solutions enable you to extend inspection and maintenance intervals, achieve reliability and availability targets, and prevent unplanned downtime.

Balance of Plant

Quest Integrity has expertise in assisting clients improve the reliability and availability of all types of balance of plant, such as water treatment, gas assets, pumping systems, lubrication circuits, control hardware and pipework. Our services assist with identifying appropriate maintenance and inspection strategies, condition monitoring and optimizing spares holding.

Critical Spares

Effective management of critical spares improves availability and safety, minimizes capital expenditure and ensures business continuity. Quest Integrity is experienced at providing critical spares assessments of plants and developing plans to mitigate disruption to operation and control risk exposure. Also taken into consideration are critical tooling, storage and spares maintenance to ensure optimized availability in the longer term.

Gas Turbines

Quest Integrity is at the forefront of gas turbine life management with expertise in hot gas path components, compressor parts, casings and rotor life extension. From aeroderivatives through to large industrial gas turbines Quest Integrity provides comprehensive turbine condition assessment and NDT inspection, including RDVITM inspections. Finite element analysis, computational fluid dynamics modelling and fracture mechanics expertise are employed to support inspection planning, life assessment and design improvements.

Steam Turbines

Damage mechanisms such as corrosion, erosion, creep, fatigue and scaling are challenging issues that affect steam powered turbo machinery, for example in geothermal environments. Our condition assessment and inspection experience provides valuable information to enable operators to confidently extend inspection periods, manage ageing plant and extend plant life.

Quest Integrity, a TEAM company, is a global leader in the development and delivery of asset integrity and reliability management services. The company's integrated solutions consist of technology-enabled, advanced inspection and engineering assessment services and products that help organizations improve operational planning, increase profitability, and reduce operational and safety risks. Quest Integrity is built on a foundation of leading edge science and technology that has innovated and influenced industry best practices since 1971.

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