

cokerPLUS



performance optimisation of coke drums

The efficient operation of coke drums has a significant impact on the profitability of refineries operating worldwide. ERA Technology's approach to plant operation and life management has assisted clients with performance optimisation of coke drums, helping to reduce business risks.

During operation the drums experience severe thermal cycling. The outcome is a variety of deformation modes due to thermal fatigue and creep, which can lead to bulging and circumferential weld seam cracking. ERA has unrivalled experience with in-service monitoring of coke drums and has developed a unique understanding of the deformation processes involved and the key parameters that affect coke drum integrity. This experience has been consolidated into a methodology and modelling technology known as CokerPLUS.

benefits

Plant life assessment of coke drums can help clients:

- reduce the coking cycle time
- improve confidence in coke drum integrity
- optimise performance
- extend the life of existing plant
- set up effective inspection and maintenance strategies
- reduce outages and unplanned inspection / maintenance
- save costs.

ERA has pioneered the use of drum strain and temperature instrumentation to determine the interactions between operational parameters and the strain levels responsible for bulging and cracking. Variations in vapour, injected steam and quench water, plus the nature of the feedstock have been shown to have a dominant effect on coke drum integrity. Once identified, the parameters may be reviewed and, where possible, modified to substantially reduce strain levels during the coking cycle, with obvious benefits to component life.

ERA's cokerPLUS methodology includes:

- strain gauge and thermocouple installation
- finite element analysis
- probabilistic remaining life assessment
- operating cycle review and modification
- condition assessment and metallographic examination
- boat sampling and testing
- weld repair procedures.

ERA provides plant life assessment management services to industry in the form technicians. ERA also supplies engineering and materials consultancy and failure investigation services to industry, loss adjusters and regulators worldwide.

ERA has developed the PLUS range of services to meet the needs of the power, oil, gas and petrochemical industries. The services all utilise ERA's unique blend of engineering, materials knowledge and process skills.

products and services include:

| | |
|------------------|------------------------------|
| boilerPLUS | for boiler plant |
| cat-reformerPLUS | for catalytic reformer units |
| cokerPLUS | for coke drums |
| heaterPLUS | for fired heater plant |
| reformerPLUS | for steam reformers |

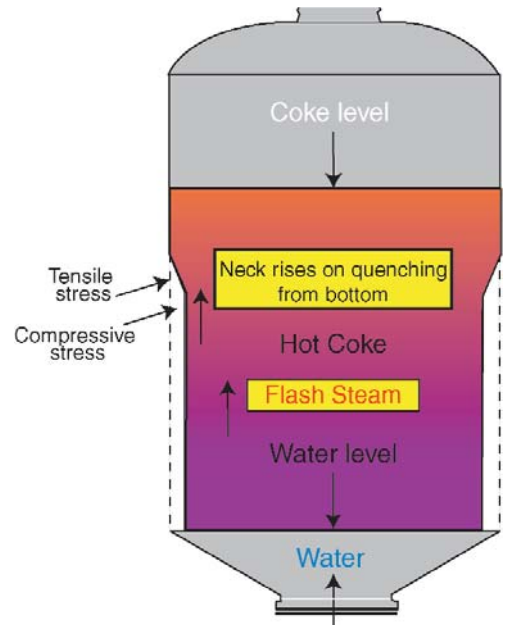
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| failure investigation services | for electrical and mechanical plant and equipment |
| rotating plant services | consultancy and failure services for steam and gas turbines |

ERA Technology

ERA Technology works at the leading edge of many advanced technologies. The business was founded in 1920 and today provides specialist, high value-added, technology-based services including design and development, testing, assessment and expert advice.

ERA's services reduce technical and commercial risk, improve the operational performance of engineering infrastructure assets, and enhance the competitiveness of products and systems.

ERA Technology is part of Cobham



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