

Coke Drum Services

Stress Engineering Services, Inc. (SES) utilizes state of the art technology and more than 40 years of applied experience to monitor, assess and extend the life and reliability of delayed coker components, especially coke drums, to meet the harsh demands of today's refinery operation, shorter cycles and zero leak tolerances. Stress Engineering's goal is to give operators a better understanding of how to optimize daily operation, inspection and maintenance practices to maximize production and drum life at the same time.

COKE DRUM CONDITION ASSESSMENT

- How much fatigue life is left in my drums?
- When will they crack?
- How significant are the coke drum bulges?
- Where do I inspect and how often?
- How do I inspect?

Our expert staff has put together and managed the inspection of more than 60 coke drums including AE testing of 48 coke drums.

COKE DRUM DEFECT ASSESSMENT AND REPAIR

- How long will it take before there is a through wall leak?
- What is the most cost effective method to repair coke drum cracks?

We have prepared detailed repair procedures for thousands of cracks in over 30 coke drums.

COKE DRUM LIFE EXTENSION

- How do process changes, i.e. feed, shorter cycles, operating procedures impact drum-life?
- Can you maximize production and drum life at the same time?

Stress Engineering's Health Monitoring System (HMS) program helps you optimize how you operate to achieve maximum drum life versus production demands. We have installed several HMS and monitored over 3,000 operating cycles.

NEW COKE DRUM DESIGN

- I am ordering new drums; how can I improve the useful life of my new drums?
 - ◆ Design of Shell and Skirt
 - ◆ Material Selection
 - ◆ Fabrication
 - ◆ Shop QA / QC
 - ◆ Acoustic Emission Testing

Stress Engineering personnel have been involved in the design of the latest state of the art coke drums and can help you design and build drums to last.



Life Extension Program for Coke Drums

COMPLETE SOLUTIONS

1. Design Them Properly - Most drums are designed as pressure vessels only. They are not designed to withstand the thermal cycles and hard coke inside. As a result, many new drums have and will continue to crack in as little as five years.
2. Fabrication - It is critical that the fabricator pay special attention to fabrication procedures, weld profile, and geometry issues.
3. Once installed, how do I inspect and how often?
4. Once cracks are found, which ones do I repair and how do I repair them?
5. Operation has a direct impact on how fast drums crack; you can improve this through:

◆ **Health Monitoring**

◆ **Daily Operational Optimization**

6. All of the above can dramatically extend drum life of your existing drums.

At Stress Engineering, our mission is to provide professional, results oriented Engineering Solutions for the monitoring, analysis, assessment and design of plant equipment. Our goal is to become an extension of your in-house engineering staff assisting you in solving problems. Through our experience, commitment, expertise and service, we're confident we can take on any problem you have. We have the know-how and drive to find solutions through skill, determination and the knowledge that comes from more than thirty years in the problem-solving business. At Stress Engineering, you always get the **Right People**, the **Right Answers** and our **Commitment to Service**.



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