



LIFE ASSESSMENT ON A HEATER TUBE DISTRIBUTION HEADER

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Background

A fire in a refinery's CCR unit destroyed all of the heater tubes inside four cells. The fire extended to each of the four overhead distribution headers.

Assignment

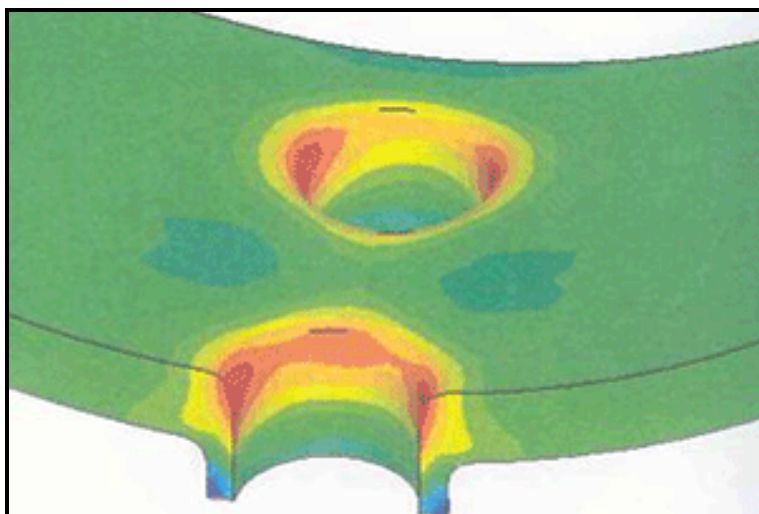
A finite element analysis (FEA) was performed on the header that was identified as having lowest hardness values to provide a remaining creep life estimate.

Findings

The potential damage to the headers was not immediately apparent during the visual inspection. A long lead time for the headers prompted an *in-situ* inspection using metallurgical replication and hardness survey using portable hardness testers.

Conclusions

The results showed that the microstructural condition of the headers remained unchanged and a remaining creep life was predicted to exceed 100 years.



An FEA model showing a cross section of the highest stressed header section.
The maximum tensile stresses are shown in red.