

## Hydrocracker Furnace Rebuild

Inspection indicated signs of creep stress and deterioration in radiant and convection sections of furnace.



*Stock image industrial furnace.*

A client's inspection of the 1960's vintage furnace identified that the tubes in the radiant sections showed signs of creep stress and required replacement. This inspection also showed other deterioration issues in the radiant section, convection section and large bore duct to the SCR from the furnace stack.

### challenge

With only a short amount of time remaining before the Hydrocracker planned turnaround, the challenge was to find an effective option to replace the required process heat input by either rebuilding or replacing the existing furnace considering safety, operability, constructability and economics all in compliance with existing environmental permits.

### solution

- Options were developed and economic assessments completed for both total furnace replacement and repair/rebuilding of the existing furnace. The rebuild option was chosen by the client as the preferred solution.
- Identified and coordinated the required demolition work necessary to complete the rebuild of the furnace.
- Provided a detailed design package within 12 weeks to meet the refinery shutdown schedule.
- Provided a detailed +/- 10% TIC estimate for budget planning and approval.
- Expedited vendor equipment to meet shutdown schedule
- Provided field construction support.
- Provided record drawings after installation is complete.

### results

The installation and commissioning were completed safely, within budget and on time.

### industry

Oil & Gas Refining

### location

USA

### services provided

Project Management and Services

Mechanical Engineering

Piping Design

Installation Packages

Procurement Support

### results

Hydrocracker operation was maintained with the installation of replacement furnace components.

The project was coordinated with other turnaround work to minimize impact to other work conducted on the same unit.