

# Hydrastep solves safety problems at Lindsay oil refinery

## RESULTS

- Reduced maintenance costs
- Concerns regarding safety issues solved
- No loss of indication or control



*The fault tolerant design of the Hydrastep continues to operate even if the circuit fails*

## APPLICATION

Boiler drum water level monitoring

## CUSTOMER

Lindsay oil refinery, Humber Estuary, UK

## CHALLENGE

Lindsay Oil Refinery is a large petroleum refinery on the shores of the Humber Estuary.

The site has many pipework processes involved in the refining of crude oil into lighter fractions. Many of the lower fraction products are extremely viscose and therefore in order for them to remain in a fluid state they must be pumped along steam jacketed pipes, and/or be held in steam jacketed vessels.

The raising of this steam is carried out by a number of oil fired and waste heatboilers on site, the main one being a 60 tonne/hr boiler situated in the catalytic cracking area of the plant. This firetube boiler uses waste heat from the FCCU (Fluid Catalytic Cracking Unit) to raise steam.

The method of measuring the boiler drum water level had always been a front and back end gauge glass system giving a local visual indication of water level. Because of the purity of the water used to raise steam, the gauge glasses would etch badly giving poor - or in some instances zero - visibility along the column.

In addition to this problem, the water level in the drum would frequently drop down lower than the gauge glass window giving the impression of an empty drum. (not something one wants on a hot boiler drum).

Lastly, costly maintenance was a key issue as often the seals would leak.



Figure 1 Hydrastep installation

## OIL & GAS

### SOLUTION

It was essential to replace the gauge glass with a more reliable, fault redundant system which did not present safety issues to the site.

A 2468 Hydrastep system was fitted to the boiler, consequently removing the concerns regarding safety. A full 24 electrode column was fitted to both ends of the boiler drum – connected to two separate electronic gauge systems. Full Lloyds and Sole gauge /ASME approvals cover the system which incorporates the split circuit design providing superior dependability over other redundant circuits; this means that no single fault can result in a loss of indication or control.

Lindsey Oil Refinery are very happy with the new system, the fault tolerant design of the Hydrastep continues to operate even if the circuit fails. The 'On line' diagnostic circuits make a test switch unnecessary - indeed testing the Hydrastep itself is unnecessary, it does this itself.

#### **Emerson Process Management Mobrey Measurement Division**

158 Edinburgh Avenue, Slough,  
Berks UK SL1 4UE  
Tel: +44 (0)1753 756600  
Fax: +44 (0)1753 823589  
e-mail: mobrey.sales@  
EmersonProcess.com  
[www.mobrey.com](http://www.mobrey.com)

#### **Emerson Process Management**

8200 Market Boulevard  
Chanhassen, MN 55317  
T (U.S.) 1-800-999-9307  
T (International) (952) 906-8888  
F (952) 949-7001  
[www.emersonprocess.com](http://www.emersonprocess.com)

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