



Upgrading Hydrogen Booster Compressors at the BP / Innovene Grangemouth Hydrocracker Complex

by:

Jerry Jones

Senior Rotating Machinery Engineer

Jim Campbell

Refinery Maintenance Manager

Innovene Grangemouth Refinery

Scotland

**4th Conference of the EFRC
June 9th / 10th, 2005, Antwerp**

Abstract:

Hydrogen forms the building block of a lot of the processes in Refining. As such, the compression of hydrogen is an essential part of most Refining processes, and the compressors used for this duty form the backbone of the unit availability and reliability.

This paper reviews the upgrades that have had to be made to two Worthington Simpson hydrogen booster compressors that form the heart of the BP / Innovene Grangemouth Hydrocracker complex. These machines boost the hydrogen supply pressure from 15.75 barg to 149 barg for the Hydrocracker loop. The reliability of these machines has historically been very poor. With proposed increases in production operating run lengths, there is less and less opportunity for preventative maintenance activity to take place; the unreliability of these machines has therefore had to be engineered out so that they will achieve in excess of 18 months uninterrupted operation.