

BOC helps clean up at BP



'The ZugiBeast' at the RPLG Refrigeration Unit, at BP, Grangemouth.

BOC has successfully stripped oil contamination from the RGLP Refrigeration plant at the BP site in Grangemouth, using the ZugiBeast- a specialist decontamination system which it has introduced to the UK.

BP's refrigeration plant had not received a major overhaul for many years, hence was suffering from oil logging in a number of the system evaporators. The oil had accumulated in the refrigerant due to migration from the system compressors.

This excessive oil build up in the evaporators resulted in a significant reduction in capacity and efficiency. A major consequence of this was increased energy consumption.

In June 2005, the BOC Refrigerants team carried out rectification at the production facility.

The BP Plant Manager said:

"After some discussion, The BOC Refrigerants team were called in to tackle the problems. We had seen BOC's decontamination unit (ZugiBeast) perform at a recent demonstration day and thought they might have a cost-effective solution. It turns out they did."

The refrigeration plant worked on was a two stage, 9/tonne R22 chiller system designed to cool propane and butane.

The system comprised of eight flooded shell and tube type evaporators and an air-cooled condenser. Total motor power being 2,425 kilowatts.

System Rectification

BOC's technicians arrived on site with the ZugiBeast, vessels and high speed dryers in order to carry out this refrigerant rectification.

The ZugiBeast slightly larger than a washing machine being small enough to fit through a standard door was set up next to the refrigeration unit and once connected refrigerant was cleaned at a rate in excess of 2000 kg/hr.

BP was impressed by the equipments compact design and ease of use, which allowed work to carry on safely in close proximity, through the duration of the decontamination process.

The equipment purges contaminates from the system, by extracting contaminated refrigerant and distilling it in the ZugiBeast. Clean contaminant free refrigerant fluid is then returned into the system, without the need for shutting down the plant.

Regular on-site sampling was carried out on the refrigerant to monitor progress. Before and after analysis of the refrigerant indicated that the oil content in the refrigerant was reduced from levels in excess of 10% to less than 1%.

In all, BOC's equipment had removed a total of 200 litres of oil from the system.

Features and benefits of this process

- Lost capacity restored;
- Energy efficiency restored;
- All refrigerant contaminants including acids, oils, particulates and moisture were reduced or eliminated;
- Significant savings made from reduced flaring; (circa £80k)

The BP Plant Manager said:

"We engaged BOC because they had the technology and the know-how to meet the challenge and turn it around quickly.

We have certainly seen an improvement in efficiency in the plant, without needing to change any moving parts or technology. .

The plant is now chilling product from a feed of 30 degrees Celsius to minus 54degrees Celsius – we have never seen lower than Minus 47degrees Celsius! I'd like to thank Colin and his team for the commitment shown when on site"

BOC's specialist techniques are vital to running a professional and efficient operation and this equipment, expertise and technical advice is only one of the many services we offer to improve system efficiency and reliability.

The BOC Refrigerant Services are applicable across a wide range of industrial sectors where refrigeration is a key part of an industrial or commercial process. These services have also been used alongside mechanical refrigeration contractors.

BOC Refrigerants
Phone: 0800 02 0800
Fax: 0800 13 6601