



When Power is Critical

IPU
GROUP
Fuel Conditioning

KENT & CANTERBURY HOSPITAL



LOCATION

Canterbury, Kent, UK

BUSINESS SECTOR

Healthcare

SIZE

300 beds

EQUIPMENT

6 diesel storage tanks supplying a number of backup generator sets

CHALLENGES FACED

1. IPU's DieselCheck fuel testing service identified extremely high levels of water and solid particulate contamination including wax, resins, organic and other debris.
2. Each of the 6 fuel tanks were situated in different locations including a basement bulk tank.
3. It was critical that the hospital maintain access to back-up power; fuel could not be taken off-site.

SOLUTIONS DELIVERED

1. IPU's ClearTank service cleaned both the fuel and tanks simultaneously without taking the generators offline.
2. IPU supplied Diesel Defence fuel polishing units to ensure the fuel stays within EN590 and ISO 4406 standards.

“ When we saw the results of our fuel tests we were concerned as reliable power is so critical to our hospital. IPU has been excellent in restoring our diesel and providing solutions that will protect our fuel in the future.

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Estates Department
Kent & Canterbury Hospital



These samples were taken from the same tank before the fuel was cleaned. The left sample was taken from the middle of the tank, the right from the bottom.

BACKGROUND

IPU were contacted by Puma Power Projects who were maintaining the gensets at the hospital. They had become concerned about the quality of fuel being used to power the generators and so requested an IPU DieselCheck fuel test. The results showed that the diesel in each of the tanks was heavily contaminated. IPU found high levels of water and solid particulate contamination including wax, resins, organic material and other debris. The hospital needed to act quickly; the consequences of a blackout would be catastrophic.

MULTIPLE TANK LOCATIONS

Kent & Canterbury hospital have a number of fuel tanks in different locations. Some are indoors, some outdoors and some underground. The test results had shown that all 6 of the tanks were showing signs of contamination. This is not uncommon as fuel degradation can occur no matter where it is stored.

Since 2011 diesel has contained 7% biodiesel. This is added to reduce its overall environmental impact. However, biodiesel increases the rate at which fuel becomes contaminated because it contains water when it's manufactured and it attracts more water while it's stored. Water is the enemy of clean fuel because:

- it's a contaminant in its own right
- it promotes microbial growth
- it accelerates damage to tank surfaces which leads to solids (such as rust) falling into the fuel

RESTORING AND MAINTAINING FUEL

Thanks to IPU's ClearTank service the hospital's fuel could be restored without disrupting day-to-day operations. Using the latest technology, IPU removed the contamination without taking the generators offline.

The hospital has also chosen to protect themselves against future fuel contamination by installing IPU's Diesel Defence fuel polishers. Using a mix of circulation and filtration, Diesel Defence polishers protect fuel in long-term storage, keeping it within EN590's clean fuel standards.

**1,500ppm
water content**

The EN590 fuel standard only allows 200ppm water content. 1,500ppm is a severe threat to generator reliability.

www.ipu.co.uk/fuel

IPU DIESELCHECK FUEL TESTING

Using globally recognised methods and standards, IPU's DieselCheck Diesel Testing Service provides accurate, reliable fuel quality reports. We test for the three main forms of fuel contamination: water, solid particulates and microbial growth.

IPU CLEARTANK TANK CLEANING SERVICE

Where contamination is found, IPU's ClearTank service cleans both the fuel and the tanks simultaneously. It ensures that:

- water is removed to a maximum level of 200ppm (parts per million) as specified in EN590
- solid particulates are removed
- microbial growth ("diesel bug") is removed
- any sludge that may have settled at the bottom of the tank is broken down and filtered out
- biofilms that form on the tank surfaces are removed
- fuel meets international cleanliness standards such as 18/16/13 (ISO 4406) and EN590 (Directive 2009/30/EC)

At Kent & Canterbury hospital the ClearTank service cleaned 33,000 litres of diesel and did not require man-entry. This allowed the generators to remain online as no diesel uplift is required.

IPU DIESEL DEFENCE FUEL POLISHING

Once fuel is cleaned, IPU's Diesel Defence fuel polishing systems keep it clean during long-term storage. The polishers circulate the diesel to prevent pockets of dirty fuel or water collecting in stagnant parts of your tank. Diesel Defence circulates stored fuel up to seven times before it passes to the day tank or back up gensets.

IPU installed DD10s on the hospital's smaller tanks and DD50s on the larger tanks. Diesel Defence polishers were the ideal solution for Kent & Canterbury Hospital as they are a 'fit and forget' product – simply set them up once and they run unassisted, month after month.

Also, thanks to IPU's engineering expertise we were able to modify the standard Diesel Defence units to include special connection flanges. This ensured a simpler integration with the hospital's existing pipework.



33,000 litres

Diesel cleaned and protected at the hospital.



ABOUT IPU

IPU's Fuel Conditioning division provides a complete 4-step fuel conditioning programme: DieselCheck, ClearTank, Diesel Defence and Fuel Stabilisation.

IPU's Fuel Conditioning experts can identify precise causes of fuel contamination and, drawing on their extensive experience in the field, recommend a fuel management programme suitable for any application.

For more information please visit www.ipu.co.uk/fuel.

ABOUT PUMA POWER PROJECTS

Formally the service division within the Puma Power Plant Group, Puma Power Projects was established in 2003 to provide both a national and international service and parts facility for generators and control systems. Their services cover not only installations manufactured by Puma Manufacturing but nearly all other makes on the market today.

For more information please visit www.pumaukservice.com

ABOUT KENT & CANTERBURY HOSPITAL

The Kent and Canterbury Hospital is an acute care hospital providing a range of elective and emergency services including an innovative Emergency Care Centre.

The original part of the main hospital building was constructed in 1937, with later developments undertaken on site in the 1960s.

The hospital provides a central base for many specialist services in east Kent such as renal, vascular, interventional radiology, urology, dermatology, neurology and haemophilia services.

Kent and Canterbury Hospital has a postgraduate teaching centre and staff accommodation.

For more information please visit:
www.ekhuft.nhs.uk/kentandcanterburyhospital.

6-12 months

The length of time fuel can be stored and expected to remain usable without fuel conditioning

www.ipu.co.uk/fuel

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