



TELECOMMUNICATIONS COMPANY



LOCATION

Nationwide

BUSINESS SECTOR

Telecommunications

SIZE

2,200+

EQUIPMENT

DieselCheck testing service
ClearTank Diesel Cleaning
Diesel Defence fuel polishing systems

CHALLENGES FACED

1. The company's outdoor storage tanks were vulnerable to water contamination. This had encouraged microbial growth in the fuel ("the diesel bug") and caused particulate contamination from rusting tanks pipework.
2. This nationwide telecommunications company would face huge consequences if contaminated fuel crippled its emergency generators. It is critical that fuel is kept in a clean, dry condition.

SOLUTIONS DELIVERED

1. Fuel was tested at 10 sites. The customer chose DieselCheck's independent laboratory option. Tests included particulate and water analysis according to ISO4406 and EN590.
2. ClearTank diesel cleaning took place at all 10 sites when analysis proved that they suffered from heavy particulate and water contamination.
3. The 5 main sites were fitted with Diesel Defence DDF on-tank fuel polishers. 5 smaller sites will be monitored and cleaned with a Diesel Defence DDM mobile fuel cleaning system.



IPU's ClearTank service

BACKGROUND

IPU were called in by a leading generator service company to analyse fuel samples at 10 sites. The fuel was tested by an independent UKAS approved laboratory. All the fuel samples failed to meet specification on initial testing.

IPU recommended a bespoke program to ensure the fuel stored across the 10 sites met or exceeded specification, complied with EN590 and met or exceeded cleanliness requirements as per ISO4406 18/16/13.

CHALLENGES WITH OUTDOOR TANKS

Due to space constraints, fuel tanks are often located outdoors. This was the case for these sites. Unfortunately, diesel contamination will thrive when fuel tanks are exposed to the elements. Water can easily enter the fuel through condensation inside the tank and rainwater can enter through hatches and enclosures.

Diesel is hygroscopic. It absorbs water naturally. Water severely affects fuel performance, promotes microbial growth and accelerates contamination from solid particulates like rust.

RESTORING THE FUEL

Initial analysis showed that the fuel in all 18 tanks failed cleanliness levels. This was based on ISO4406 reporting by an independent UKAS laboratory.

As a result, 16 of the 18 tanks were cleaned using IPU's ClearTank service. This unobtrusive cleaning service required no man-entry and no fuel uplift. This allowed the tanks to remain online and ready for use during the entire cleaning process.

Once completed, samples were resubmitted to the same independent laboratory to ensure all critical parameters were met. This included having water content below 200ppm and particulate contamination below the 18/16/13 level stipulated by ISO4406. The fuel was also checked for FAME and sulphur content.

The fuel cleaning process took place throughout 2017 with quarterly checks at all sites.

Each site was then assessed for the most appropriate fuel polishing systems. Some tanks were fitted with Diesel Defence DDF on-tank systems, others rely on Diesel Defence DDM mobile systems.

177,000+

litres of fuel cleaned across 10 sites

www.ipu.co.uk/fuel

The following table shows the clear importance of cleaning and regularly polishing the fuel.

| | Jun 2016 result | Mar 2017 result | Jan 2018 result | Water (ppm) | Tank size (l) | Polisher fitted |
|---------------------|-----------------|-----------------|-----------------|-------------|---------------|-----------------|
| <i>Target</i> | 18/16/13 | 18/16/13 | 18/16/13 | 200 | - | - |
| Tank A | 28/25/20 | 23/23/21 | 17/14/8 | 25 | 20,000 | Yes |
| Tank B | 23/23/20 | 19/17/14 | 18/15/9 | 48 | 4000 | Yes |
| Tank C | N/A | 18/16/13 | 17/15/11 | 34 | 21,000 | Yes |
| Tank D | 23/21/17 | 17/15/11 | 16/13/8 | 21 | 21,000 | Yes |
| Tank E ¹ | 21/18/13 | 17/14/10 | 15/14/11 | 30 | 23,000 | Yes |
| Tank F ¹ | 22/19/14 | 21/14/9 | 18/13/10 | 26 | 23,000 | Yes |
| Tank G ² | 22/19/14 | 23/19/15 | 26/23/19 | 26 | 500 | No |
| Tank H ² | 20/18/14 | 26/20/18 | 25/24/20 | 19 | 500 | No |
| Tank I | 26/23/19 | 18/14/11 | 18/15/10 | 110 | 2,100 | No |
| Tank J | 25/24/20 | 17/14/10 | 16/14/13 | 63 | 2,100 | No |
| Tank K | 21/18/14 | 18/15/11 | 17/15/11 | 32 | 40,000 | Yes |
| Tank L | 21/19/14 | 20/17/13 | 17/15/12 | 29 | 16,000 | Yes |
| Tank M | 25/23/19 | 18/15/11 | N/A | 26 | 500 | N/A |
| Tank N | 22/20/16 | 17/15/10 | 15/14/12 | 21 | 360 | No |
| Tank O | 25/23/21 | 20/18/15 | 19/18/15 | 15 | 1,200 | No |
| Tank P | 20/18/14 | 20/18/15 | 19/16/13 | 21 | 1,300 | No |
| Tank Q | 21/19/16 | 19/17/12 | 17/14/9 | 42 | 2,000 | Yes |

- 1 Tanks E & F were not cleaned before Diesel Defence DDF on-tank units were installed. Fuel condition improves in this scenario but it is slower than cleaning and requires more frequent filter changes.
- 2 Tanks G & H were not cleaned and had no remedial work carried out. It is clear to see the deterioration in the fuel when no action is taken.

A SMOOTH, SIMPLE SOLUTION

Diesel Defence DDF on-tank polishing systems have been fitted at five sites. They are regularly monitored. Due to smaller tank sizes and potential changes to the sites, the other 5 sites use a Diesel Defence DDM mobile fuel cleaning system.

Samples are taken on a quarterly basis and are reviewed with the customer.

It is clear to see the improvement made by DDF on-tank units. They reduce contamination even after fuel deliveries and top-ups. Tanks in this situation are monitored closely by IPU and filtration required can be adjusted where necessary.

5

Diesel Defence DDF on-tank fuel polishing systems installed



ABOUT IPU GROUP

IPU's Fuel Conditioning division provides a complete range of products and services to detect and eradicate harmful diesel fuel contamination. The range includes products for bulk fuel storage tanks, day tanks, vehicles and gensets.

IPU Group Fuel Conditioning

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