

PRESERVING POWER FOR SCOTTISH ISLANDERS



Location

Isle of Lewis, Scotland.

Business sector

Power Generation.

Size

20,000 employees.

Equipment

Diesel Defence fixed polishing unit.

“It was a complex installation but everything was conducted smoothly and on time.”

Roddy Graham, Station Manager, SSE

Problems faced

- SSE identified dangerous levels of particulate and microbial contamination in their stored fuel. The reliability of the island's power station was at risk.
- Fuel filters were clogging within days. This increased costs, imposed a heavy maintenance burden and risked shutting generators down.
- Fuel is stored on the island for long periods because re-supply is more difficult than for mainland sites.

Solutions Delivered

- IPU's bespoke Diesel Defence fuel polisher brought the fuel in the two 1,000,000 litre tanks within the internationally-recognised EN590 and ISO4406 standards
- IPU successfully delivered, installed and commissioned the polisher in a challenging location.



IPU's workshop staff used cutting-edge technology to build the perfect solution.

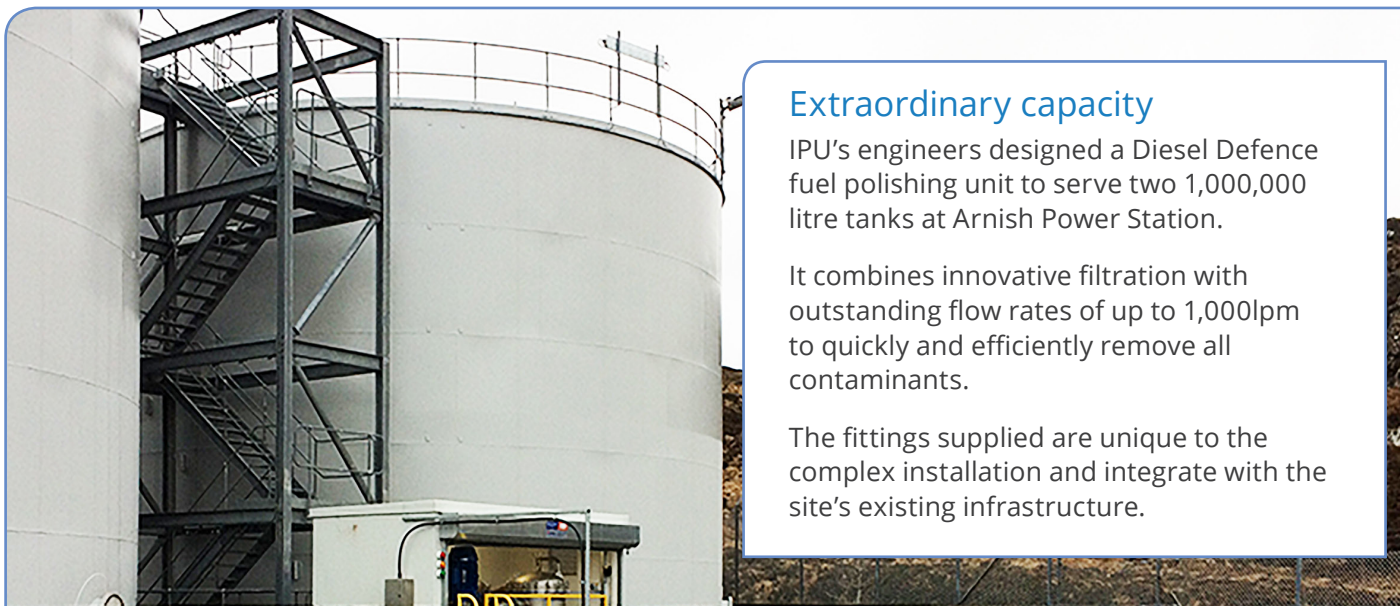
Let's talk

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BACKGROUND

SSE's fuel stocks at Arnish Power Station were heavily contaminated. Frequent filters changes revealed the severity of the problem. The island's electricity supply was at risk.



Extraordinary capacity

IPU's engineers designed a Diesel Defence fuel polishing unit to serve two 1,000,000 litre tanks at Arnish Power Station.

It combines innovative filtration with outstanding flow rates of up to 1,000lpm to quickly and efficiently remove all contaminants.

The fittings supplied are unique to the complex installation and integrate with the site's existing infrastructure.

A precarious situation

A fuel cleaning operation identified thick layers of sludge at the bottom of SSE's two 1,000,000-litre bulk storage tanks. The contamination threatened the reliability of the entire power station.

Arnish provides top-up power for the Isle of Lewis. The island's 20MW cable supply from the mainland does not meet the peak demand of 27MW.

If contaminated fuel caused the power station's generators to fail, islanders would face brownouts or blackouts. SSE had to take action.

"The filters were coming out black"

The contamination in Arnish's fuel stocks was evident without the need for a fuel test. When they were removed, spent filters were black and clogged with solid particulate and microbial contamination.

Each filter was meant to last 500 hours. At one point they were being replaced in less than 48. Maintenance had become costly and time-consuming.

Fuel starvation

On occasion, clogged filters had a more calamitous effect than increasing SSE's maintenance workload.

The modern, high-speed engines used at Arnish require high and consistent fuel pressure. If a clogged filter threatened this during the day, staff could change the filter as soon as they saw an alert.

But there are no staff at the site at night. Clogged filters had sometimes starved the generators of fuel and caused a shutdown.

The demand for fuel polishing

SSE initially commissioned IPU to perform a ClearTank fuel cleaning. This was only a short-term solution. IPU removed the contamination from the tanks but it was bound to return because the fuel spent so many months in storage.

The Isle of Lewis' climate exacerbated the problem. Big changes in temperature and humidity provide an ideal environment for contaminants to develop.

SSE concluded the only solution was to install a fixed fuel polishing unit that would keep their fuel clean 24/7.

THE IPU SOLUTION

A collaborative partnership with IPU

SSE commissioned IPU to design and build an on-tank fuel polishing unit to resolve its contamination issues. They were already impressed by IPU's capabilities having previously installed three small Diesel Defence polishers to service the site's day tanks.

The brief was to fabricate a bespoke polishing system that would connect permanently to SSE's two bulk storage tanks and fit the site's existing infrastructure.

The goal demanded was to rapidly and efficiently recirculate 2 million litres of fuel to keep it free of contamination and safeguard Lewis' electricity supply.

IPU's experienced engineering team worked closely with SSE's staff to ensure the unit matched the client's exact specifications.



The result

IPU's Diesel Defence polishing unit immediately addressed the severe contamination affecting the station's fuel tanks.

The unit runs 24/7. Recirculation repeatedly cleans the fuel and prevents pockets of dirty fuel and water from collecting in stagnant parts of the tanks. Multi-stage filtration and exceptional flow rates of up to 1,000lpm rapidly remove particulates, water content and microbial growth.

SSE's fuel stocks now exceed industry cleanliness standards such as ISO4406 and EN590.

The operational pressures on SSE's workforce have eased significantly. The Diesel Defence unit is a 'fit and forget' solution. It runs unassisted month after month. The site is attended on a daily basis but SSE's staff no longer have to change filters nor do they have to check the Diesel Defence unit. It alerts them if it needs any attention.

Prior to the Diesel Defence installation, staff had to change filters on one of the station's eight engines every day. After IPU's intervention there was a period of two months when no filters needed replacing. When they are changed as part of a standard maintenance schedule, the spent filters are visibly cleaner.

Thanks to IPU's solution, SSE's employees have more time to focus on more constructive aspects of their business.

There have been no fuel-related engine shutdowns since the Diesel Defence unit was installed. The generators have been continually available to serve the islanders. IPU's solution has established the reliability the power station needed and reduced maintenance to a level SSE can accept.

2,000,000 litres

The total volume of fuel protected.

1,000 l/min

The maximum flow rate achieved.

ABOUT IPU

IPU helps businesses reach the profitability and efficiency they seek.

For nearly sixty years, we have delivered the expert assistance and customer service that lets our domestic and international customers excel in their industries.

We support businesses in sectors including power-generation, oil & gas, marine, IT & telecoms, manufacturing and government.

Our industry experience, competitive pricing and superb support let us evolve from a regular supplier to become the company our customers *want* to do business with.

ABOUT SSE

SSE is one of the UK's fastest growing energy companies and manages the largest energy distribution network in the country with over 150 locations.

Its operations include the generation and supply of electricity and gas, the operation of gas and telecoms networks and a range of other energy-related services.

Formerly known as Scottish and Southern Energy, SSE is listed on the London Stock Exchange and is a constituent of the FTSE 100 index.

SSE is considered one of the 'Big Six' companies which dominate the energy market in the UK.



For further details, please visit:

IPU.CO.UK/FUEL

For more information, please contact:

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