

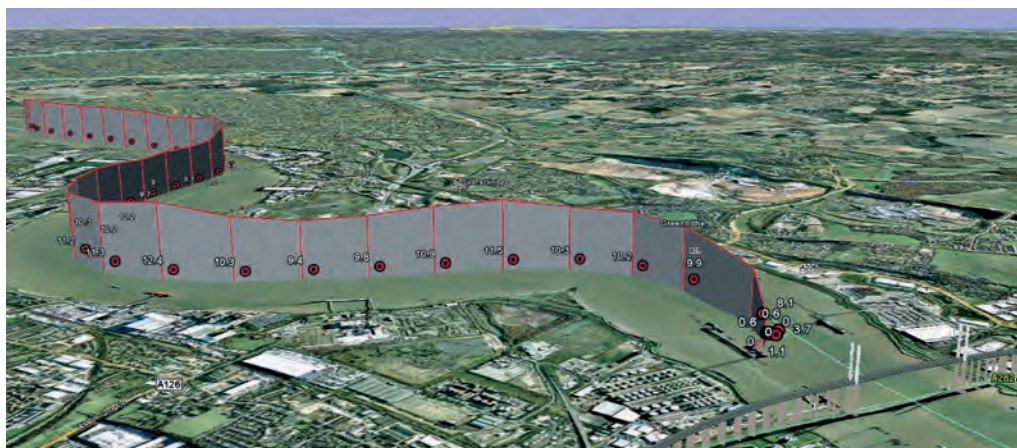
Tug Malta selects engine monitoring system

The only company licensed for towage operations in Malta, Tug Malta, is having a Royston engine fuel consumption monitoring system fitted to its newest tug. The vessel is currently under construction at the Zamakona yard in Spain and when it enters service the new system will enable it to be operated with maximum fuel economy.

The engine system will supply data from all five diesel engines aboard the tug. These comprise two Caterpillar 3516 main engines, two Caterpillar 6.6 auxiliary engines and one Deutz BF4M1013M harbour generator set. The engine data taker will receive and process both digital and analogue data from sensors and flow meters on each of the engines. This represents an advance in the technology that is enabling Royston to offer a more compact and cost-effective product to the customer.

It can be applied to any diesel-powered vessel and works by accurately measuring fuel flow and matching the data with its GPS location. Fuel consumption reductions of up to 20 per cent have been achieved by enabling the operator to continuously calculate a vessel's 'miles per gallon' and to correlate the information with its activity and speed. Because it is a measurement system, it does not impose itself upon the vessel's controls in any way. However, by providing a simple and easily interpreted bridge display it enables masters to be continuously aware of their fuel consumption. They are then able to identify their priorities and achieve an optimum balance between their speed and fuel consumed.

The benefits of the system are also available to operations managers ashore who are provided with a more sophisticated display that makes it easier to deploy vessels in a timely and cost-effective way. The data that is being used on the vessel and its GPS location is also relayed ashore where a satellite map display provides managers with a real-time presentation of the vessel's



fuel consumption. Managers benefit from a graphic overlay that shows the amount of fuel being consumed by the tug at any point along its track. This enables them to deploy their vessels more efficiently and to avoid issuing instructions that lead to unnecessary fuel consumption.

Although engine has proved invaluable as a fuel monitoring system, it was originally developed by Royston for monitoring the condition and performance of engines. Sensors can be attached to any part of an engine to provide shore-based managers with real time data so any potential faults can be identified and the problem addressed before it becomes an expensive failure. Sensors can be fitted to record such details as engine temperature and emissions, exhaust and coolant temperatures, boost and oil pressure, heat exchanger efficiency, load, rev/min and even turbocharger and shaft vibration.

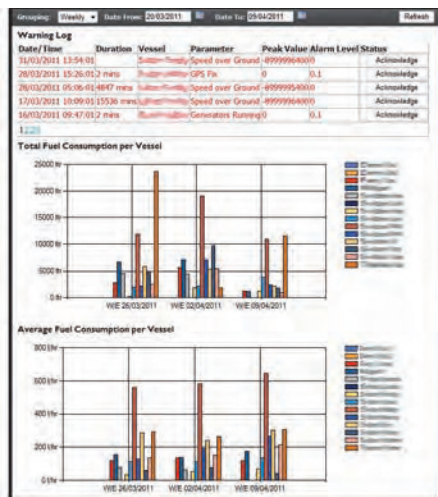
The data can be presented in any way requested by the user, but shore-based technical staff are known to favour the Google Earth display that shows the real-time track of the vessel within its surroundings. A graphical presentation of the data being monitored can then be superimposed on the track to create a display that shows, at a glance, the status of the feature being monitored when the ship

was at a particular location. This evolves as a continuous bar graph that follows the ship's route (see above).

Tug Malta Ltd commenced its operations in 1980 and now operates a fleet of seven tugs with bollard pulls ranging from 32-82 tonnes.

Royston Ltd was founded over 30 years ago and is now one of the world's leading specialists in diesel engine technology with bases in the UK and Australia. In addition to its engine product, the company offers a comprehensive engine management and maintenance service that can take responsibility for every diesel engine in a company's fleet regardless of its make or age. This is particularly helpful for those fleets with a variety of engine types as maintenance can be conducted in the most cost-efficient way and with the minimum of vessel downtime.

The company also possesses the expertise to overhaul any make or age of diesel engine to ensure that fleets with discontinued products remain fully operational. The company is also involved in the design, supply, installation and on-going maintenance of diesel engines and generators and is a distributor and service dealer for high and medium speed engines and OEM spare parts.



- ▲ Shore display showing track and fuel used.
- ▲ Royston engine data shot.
- ▼ Data taker.
- ▶ Tug bridge display.

