JUN 2017

Case Study

Increasing efficiency and cost savings through accurate fuel consumption monitoring

BACKGROUND

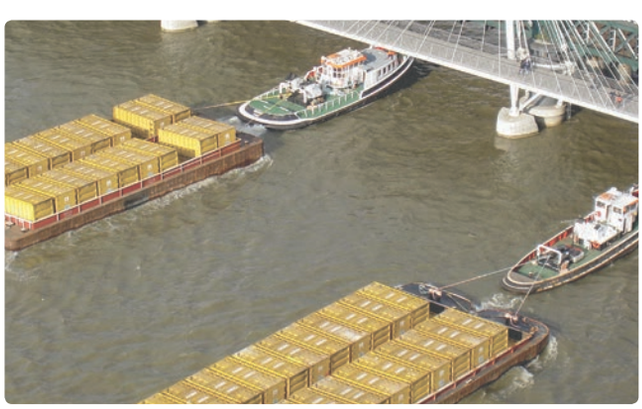
Fuel consumption is one of the key parameters monitored by ship owners around the world as it provides insights on how operators can improve their overall vessel performances. This is essential in increasing work efficiencies and cost savings.

There are several methods in determining fuel consumptions of a vessel, with the most common being:

1. Bunker Fuel Delivery Notes (BDN) and periodic stock takes of fuel tanks
2. Fuel Tanks Monitoring
3. Flow Meters

While the first two methodologies are visibly lower in cost, the percentage of inaccuracy is significantly higher and requires more labour intensive data collection. Installation of flow meters was therefore the most reliable and reasonable form of measurement.

Ascenz is Asia's leading provider for remote monitoring and fuel efficiency management systems for the maritime industry. Since its establishment, Ascenz has equipped more than 1,200 mass flow meters in various vessel types and managed close to 400 vessels. Our proprietary Shipulse solutions suite has delivered comprehensive and insightful information to ship owners and vessel operators allowing more informed decision makings.



CLIENT

Fangiono Perkasa Sejati PT (FPS PT) is a subsidiary of a leading palm oil producer in Asia. The company supports its parent group by providing the transporation of goods to local and international markets using tugboats.

However, they quickly noted that the traditional methods of fuel measurements were not only inaccurate, but inefficient and had low cost-savings.

The inability to accurately monitor their cost made it difficult for the justification of fuel consumption against distance coverage or work done. Likewise, it was not possible to spot trends and issues based on the fuel consumed.

The company then decided to seek for alternative methods of measurements.

OBJECTIVE

FPS PT's objective was to implement a simpler and more efficient process for its crew where minimal human intervention was required. They hope to reduce the time spent on manual measurements and improve the accuracy of its readings.

Previously, the company uses the vessel tank sounding method, where the quantity of fuel in the tank was manually measured with a sounding tape. The volume was then calculated based on the tank sounding table provided on board. However, due to the inherent imperfections of a tank, the accuracy of volume measurement was limited. In addition, the method was highly prone to human errors, further reducing the reliability of the records.

THE SEA TRIAL

A sea trial was arranged to be conducted on one of FPS PT's tugboats. The aim was to demonstrate the significant differences in operational efficiencies as compared to manual tank soundings.

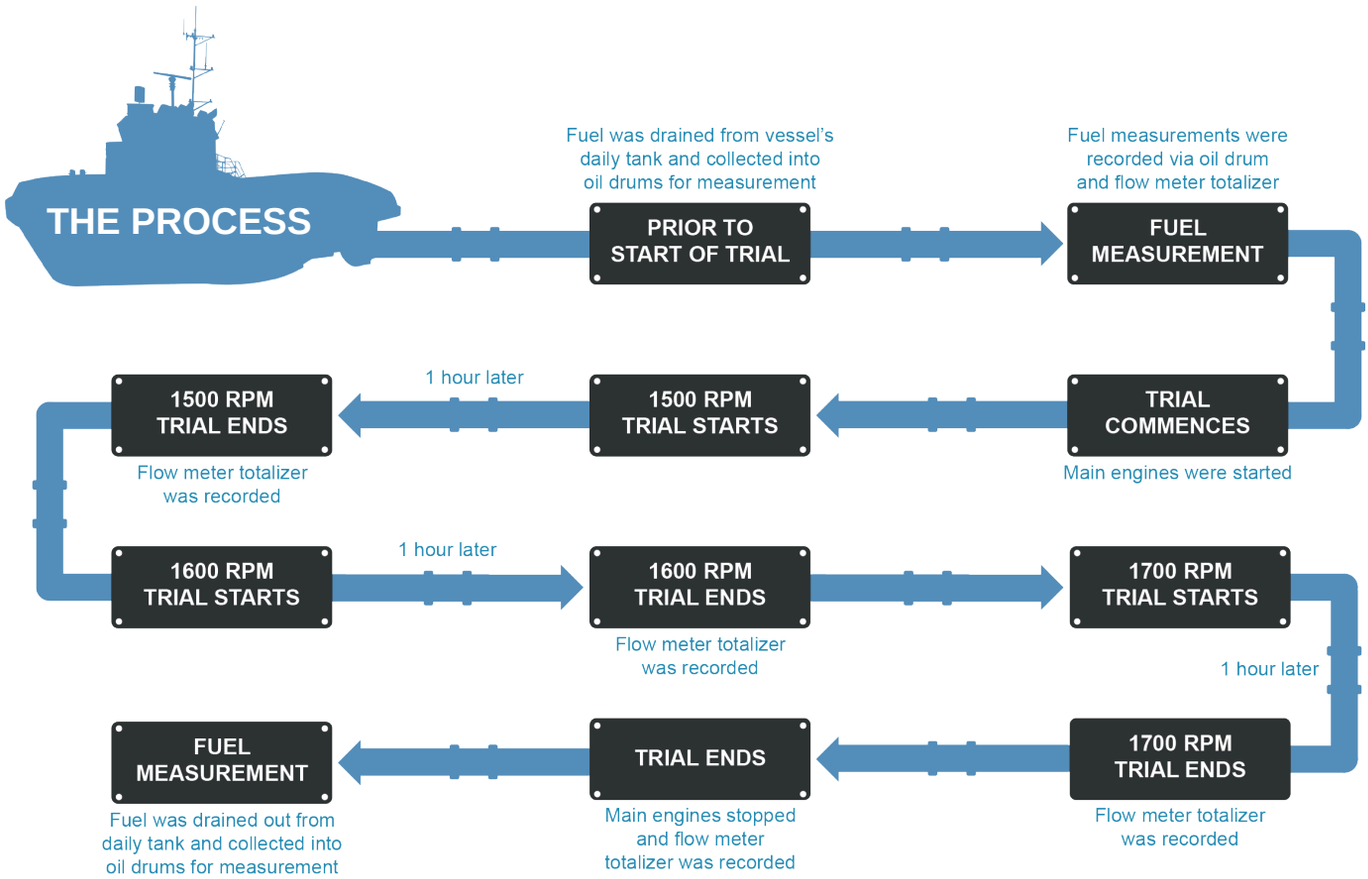
METHODOLOGY

For transparency, Ascenz and FPS PT agreed on using an external oil drum for measurement control. Fuel was drained out of the vessel's Daily Tank and measured before and after the trial. The drum's measurement was then compared with Ascenz' meter readings to determine its accuracy.

The trial was conducted on the following RPMs for a period of 1 hour each:

- 1500 engine RPM
- 1600 engine RPM
- 1700 engine RPM

During the trial, fuel consumption was measured using Ascenz' Flowpulse Coriolis flow meters. Data received from the flow meter was transmitted via the Shipulse Data Acquisition System (DAS) to our Shiplulse Online Portal for remote monitoring purposes. The system was complemented with our satellite communication system to allow transmission of data while the vessel was out at sea. To reduce satellite air time, the GSM network was used whenever the vessel was within coastal network.



*Generator receives fuel from external source. Fuel from daily tank is used for main engine consumption only.

ACCURACY CALCULATION

Time	Consumption based on drum measurement	Consumption based on flow meter	Accuracy (%)
13:35 - 19:00	291 litres	293.87 litres	+0.98%

CONCLUSION

The trial had allowed FPS PT to be exposed to a more accurate form of fuel consumption measurement. Ascenz' fuel monitoring system has helped improve the process and operations of FPS PT by reducing the amount of manual data entries and improving its accuracy.

From here on, FPS PT will now be able to manage their cost more effectively by optimizing their vessel performances and reducing operating costs. With knowledge on each tugboat's fuel usage, FPS PT can spot discrepancies such as a sudden spike in fuel consumption and act accordingly.

Subsequently, FPS PT had requested for the same comprehensive sea trials to be conducted to 9 other tug boats. This was to provide assurance to its crew members on the accuracy of Ascenz' fuel monitoring system. All of the 10 tugboats are now installed with Ascenz' fuel monitoring systems.