

Mobilgard™ 540 delivers excellent engine cleanliness, whilst supporting IMO 2020 compliance for K-ENE



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The combination of **Mobilgard™ 540** and the insights gained from **Mobil ServSM Cylinder Condition Monitoring** ensured that K-ENE could safely and efficiently reduce TONEGAWA's cylinder oil feed rate by 5% without compromising on performance or engine cleanliness

ExxonMobil Marine Lubricants and "K" Line Energy Ship Management (K-ENE) worked together to help ensure the continued smooth operation of its vessels during the onset of IMO 2020. As part of this programme, the tanker TONEGAWA was switched to **Mobilgard 540** cylinder oil with productive results.

Background

One of K-ENE's key priorities during the IMO 2020 fuel change was to maintain the reliable operation of its vessels. Failure to successfully manage the switchover could lead to unnecessary engine damage, avoidable maintenance and costly downtime. K-ENE therefore needed a high-performance lubricant that could reliably protect engines and provide peace of mind during the transition to lower sulphur fuels.

Situation

The K-ENE tanker TONEGAWA is powered by a Mitsui MAN ES 7G80ME-C9.5 main engine. To safeguard against avoidable wear, the engine designer recommends continued cylinder condition monitoring and scrape down analysis.

The vessel switched to an IMO 2020-compliant fuel prior to the 1 January deadline and concurrently started to use **Mobilgard 540** cylinder oil, which is specifically designed to lubricate two-stroke engines running on 0.50% sulphur fuel.



Fig 1 Pre IMO 2020 Using HSFO and Mobilgard 5100
Unit 3 exhibits high level of cleanliness without observable deposit (Dec 2019)



Fig 2 Post IMO 2020 Using VLSFO and Mobilgard 540
Unit 3 continues to exhibit high level of cleanliness after 2500 hr use of Mobilgard 540 (Jun 2020)

Recommendation

K-ENE counted on ExxonMobil's recommendations and technical insights to help maintain the Toneyawa's engine condition. Results from the

Mobil Serv Cylinder Condition Monitoring onboard unit were evaluated in real time to assess the condition of its cylinder liners, ensuring that the optimum feed rate for **Mobilgard 540** lubricant was quickly identified and maintained. The crew carried out frequent scavenge port inspections to visually determine engine cleanliness and the thickness of the coating on the piston rings was also monitored to map wear patterns.

Impact

The close collaboration between K-ENE and ExxonMobil helped ensure the safe and efficient operation of Toneyawa's main engine during and after the switchover to IMO 2020-compliant fuel. Following the change to **Mobilgard 540**, data from **Mobil Serv Cylinder Condition Monitoring** enabled the vessel operator to reduce the cylinder oil feed rate by 5%. Regular inspections showed that cleanliness levels had been maintained, with no deposit build-up on pistons.

"As a responsible vessel operator it was essential that we ensured that our switchover to IMO 2020-compliant fuels was scrupulously handled," said Mr. Iwane Ogawara, Senior Managing Director, K-ENE. "It was also important that we managed this without compromising on engine protection. Thanks to ExxonMobil we were able to meet these twin challenges. The switch to **Mobilgard 540**, in combination with **Mobil Serv Cylinder Condition Monitoring** which provided us with up-to-date insights, enabled us to reduce cylinder oil consumption, safely and without concessions."

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