



# ALTERNATIVE PETROLEUM TECHNOLOGIES

*Helping to save the planet one drop at a time.*

**May 11, 2015**

## Initial Results of Sea Trial on New Zealand Ferry Show Fuel Savings for APT's Fuel Oil Emulsion

Alternative Petroleum Technologies (APT), a US based Technology Company, released information today about an ongoing trial of its Fuel Oil Emulsion (FOE) technology on the Arahura, a ferry belonging to Interislander/KiwiRail, a state owned entity in New Zealand. The trial has been planned and overseen by its partner, Blended Fuel Solutions New Zealand Limited, and Interislander staff.

The trial is independently monitored and scheduled to run for three months, and is a continuation of an earlier pilot trial which showed reduced fuel consumption of 3 to 5% and reduced stack emissions. To prepare for this trial, the engine used went through planned maintenance and a controlled month long run on standard bunker fuel. It was then internally inspected, refitted with refurbished injectors, and released for the trial using the FOE fuel.

Initial results on a FOE emulsion containing 8% water appears to have confirmed reduced fuel consumption and further trials are underway to validate this in monitored, operational conditions.

Interislander's Operation Project Manager Malcolm Sims says that "the potential fuel savings are a significant component of our drive for efficiency and environmental responsibility".

Blended Fuel Solutions NZ Ltd, Managing Director Leigh Ramsey, says "as Interislander and KiwiRail is a large user of liquid fuels in New Zealand it was a no-brainer they should consider this technology to improve fuel efficiency and reduce a multitude of stack emissions".

Alternative Petroleum Technologies Jack Waldron VP Engineering says "we are pleased with the progress of the trial and the results that have been independently validated by Interislander consultants. The independent results being reported are as expected from the technology"

The FOE trial is also receiving support from New Zealand's Energy Efficiency and Conservation Authority (EECA) under a "Technology Demonstration Project" grant. These grants aim to encourage the adoption of emerging energy efficiency and renewable technologies.



*The Arahura*

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Note to editors:

The trial is being independently monitored and includes a month running on normal fuel to give a base line and pre and post internal engine inspections.

The FOE requires no engine modification to run, but the fuel needs to be pre-processed to create the emulsion. An emulsion is made when one substance coats another. The word “emulsion” derives from “to milk” since milk is an emulsion of fat in water. The FOE is the reverse of that (water in oil) and is therefore more like butter where the butterfat coats water. To make the emulsion the oil and water is mixed in a high-shear mixer with an additive that allows the emulsion to form and remain stable. This can be done in-line just prior to combustion.

Because the oil is on the outside the FOE behaves like normal fuel in the engine until the point of combustion when the water rapidly turns to steam and breaks the oil up into finer droplets than would normally occur. This leads to more complete combustion with less waste, including particulates and greenhouse gases.

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