The "Star" Ferry Company, Limited

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Your Reference:
Our Reference:

16 September 2009

Clerk to Panel
Legislative Council Secretariat
3rd Floor, Citibank Tower
3 Garden Road, Central
Hong Kong

Attn: Miss Mandy POON

Dear Miss Poon

Panel on Environmental Affairs- Special meeting on 6 October 2009

We regret to advise that we shall not be able to attend the subject meeting but would like to furnish you a written submission highlighting our efforts in emission reduction since 2005 :-

1) We are one of the pioneers among local ferry operators in testing various measures for emission reduction. The first initiative can be dated back to the summer of 2005 when we started the pre-sea trial study of using emulsified fuel.
2) Please note that we have kept related government departments including Transport Department, Environmental Protection Department and Marine Department well informed on the progress, status and results of our initiatives all the time.
3) Having done a series of pre-sea-trial tests on the application of the emulsified fuel, we found that the use of emulsified fuel could effectively reduce air

pollutants in the engine exhaust. With the agreement from Marine Department, we started the 1000-hour unloaded (i.e. no passenger on board) sea trial of using emulsified fuel on Night Star from 13 February to 3 June 2007. However, after 740 hours unloaded running, we found carbon patches and abnormal wear and tear on engine's cylinder liners due to reduced lubricating effect inside the combustion chambers. Therefore, we stopped continuing the sea trial.

4) We also tested Ultra-low Sulphur Diesel (ULSD) onboard Night Star in December 2006 for emission comparison analysis. Due to the absence of sulphur content, we found that ULSD's lubricating performance was poorer than marine light diesel (0.5% sulphur contents meeting MARPOL Annex IV Standards).

5) According to an oil expert making reference to unique engine features of our fleet, the use of ULSD might worsen the lubricating effect in our fleet's fuel injection pumps and injection nozzles. An output power loss of about 10% was recorded implying that higher fuel consumption was anticipated by using ULSD.

6) From the emission analysis done by Polytechnic University in the test, other than Sulphur Dioxide (SO_2), ULSD served no superior emission reduction to marine light diesel. Worst of all, its smoke value and particulates increased substantially in the trial.

7) A Canadian scientist and diesel combustion expert, Dr. John Wong, commented that in our case, to remove or reduce pollutants from the fleet's engine exhaust before they were discharged, a recognized add-on back-end treatment approach for emission reduction to be retro-fitted into the engine's exhaust system would be a solution. Adoption of a front-end approach, like using ULSD is not recommended in our case.

8) A retro-fit option as proposed by the EPD in its Air Quality Objectives consultation paper is the Selective Catalytic Reduction (SCR) technology. According to the maker's information, the device requires an exhaust temperature of 200°C or above to function; nevertheless, the exhaust temperature of our classic fleet is no higher than 168°C and hence this SCR technology is not applicable in our case.

9) In April 2008, we pursued a tailor-made wet-scrubber device jointly developed by the Mechanical Engineering Department of Hong Kong University and Dr. Wong, the Canadian scientist. Marine Department approved the prototype, and

we installed it on board Day Star for trial.

10) The wet-scrubber prototype effectively removes over 90% of the SO_2 which is comparable to the use of ULSD in our case, it also significantly removes visible smoke, and its discharge water quality is far superior to the allowable standard.
11) While we were in the process of further enhancing the capability of the wet scrubber, we were invited by the EPD in November last year to participate in a sea trial of using ULSD.
12) As we have done the trial on ULSD before, given that EPD gave no response to address our technical concerns on using ULSD, we see no merit to participate in the sea trial this time though we had not actually refused to join the sea trial.
13) Based on the promising emission reduction results in the prototype of the wet-scrubber, it seems that the use of wet-scrubber is more superior to ULSD in our case for emission reduction.
14) However, if we were forced to use ULSD, we might need to replace all ferry engines to accommodate the use.
15) Even though Star Ferry has not participated in the trial, Star Ferry has agreed to join the monitoring task force to keep a close watch on the development.

Thank you very much for your invitation and attention.

Yours sincerely

For and on behalf of
The "Star" Ferry Company, Limited

Johnny Leung
General Manager