

**H.M.F. OIL CO. LTD.
408 MISSISSIPPIAN DRIVE
BOX 938, ESTEVAN, SASK. S4A 2A7**

ENGINE MONITORING EXERCISE

Vessel - River Tow Boat

Engines -2- Alco 251 12 cylinder 1800 H.P.

Course - N.O. to Pittsburg, PA. - return

Purpose -To determine electronically the effect, if any, of Oil Stabilizer on an engine's performance.

Vessel Owner/Operator

HISTORY:

The vessel was chosen for this exercise because of the electronic engine monitoring system, which is part of her regular equipment. This system consists of electronic sensors attached to each engine which feeds electrical impulses to a computer which in turn translates these impulses to usable figures which are typed by the computer on a print-out form (typical section from the permanent print-out of this trip is attached) as well as being broadcast on a screen. Information presented each hour for each engine is R.P.M.'s, Torque, Brake H.P. and fuel consumption in gal. per/hr.

The engines were a matched pair when installed, thus were the same age and had the same number of operating hours. Computer print outs from previous trips were studied and revealed the engines were almost identical in performance, fuel consumption, oil consumption and power.

By a flip of a coin the port engine and gear-box were chooses to receive the Oil Stabilizer. The engine sump was filled with 80% of its regular oil and 20% (35 gal) of the oil stabilizer. The gearbox was filled wit 75% of its regular oil and 25% (15 gal) of the oil stabilizer.

From this point forward to Pittsburgh and return procedures were standard, it would not have been known the Oil Stabilizer was aboard; unless you read the computer print out. The Oil Stabilizer was making its presence known in a rather spectacular way causing an increase in Torque, and H.P. while using less fuel and make-up oil. The exact averages for each engine computed from the tapes are as follows:

	Starboard	Port Engine	% Difference
Make-up Oil	180 Gal	120 Gal	-25%
Brake H.P.	1,412 H.P.	1,485 H.P.	+ 5%
Torque	28,516 T	30,248 T	+10.6%
Fuel Gal Per Hr.	107 GPH	94 GPH	-11%
RPM	866	858	--

Taking the usable figure from the computer print-out on River Tow Boat, in which the port engine and gearbox were treated with OIL STABILIZER, 13 gallons less fuel at \$1.00 per gallon equals \$13.00 per hour of operation. The recommended oil change for the engine is every 600 hours. Therefore at the time of each oil change, a savings of \$13.00 for each of the 600 hours for a total dollar savings of \$7,800.00 has been realized. Had Oil Stabilizer treated both engines, 600 hours of operation would have provided them with a savings of \$15,600.00 in fuel alone.

MONTH/DAY	PORT	PORT	PORT	PORT	STBD	STBD	STBD	STBD
HOUR MIN	RPM	TORQUE	HP	GAL/HOUR	RPM	TORQUE	HP	GAL/HR
08/20-09:00	506	12579	352	30	0	0	0	13
08/20-09:29								
FULL SPEED AHEAD								
08/20-10:00	849	29093	1368	97	863	27634	1321	104
08/20-11:00	587	12363	402	33	541	8555	256	21
08/20-12:00	895	33022	1637	104	941	30357	1583	119
08/20-13:00	892	33612	1660	103	913	31544	1595	116
08/20-14:00	923	33311	1704	104	927	32186	1653	117
08/20-15:00	902	33630	1681	103	934	31334	1621	117
08/20-16:00	931	33039	1703	105	923	31542	1614	116
08/20-17:00	902	34132	1706	105	906	32209	1616	115
08/20-18:00	909	33573	1691	104	923	31672	1620	116
08/20-19:00	888	33735	1660	103	938	31591	1641	118
08/20-20:00	927	33410	1716	106	920	31679	1614	116
08/20-21:00	506	12875	360	33	492	10421	283	65
08/20-22:00	931	31664	1632	107	923	29945	1532	117
08/20-23:00	899	33234	1655	103	923	31435	1688	117
08/21-00:00	858	32964	1699	106	866	31049	1582	116

DAY PORT HPHR = 3622 GA = 1271 STBD HPHR = 3445 GAL = 1437

START OF NEW DRY TOTALS