

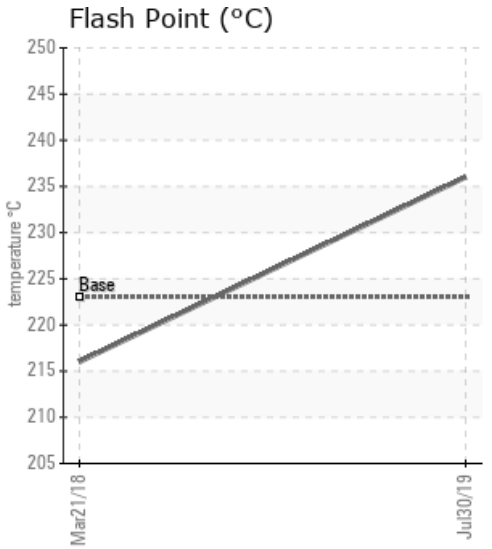
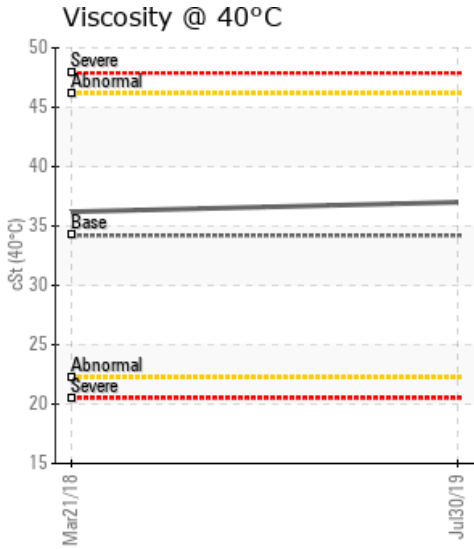
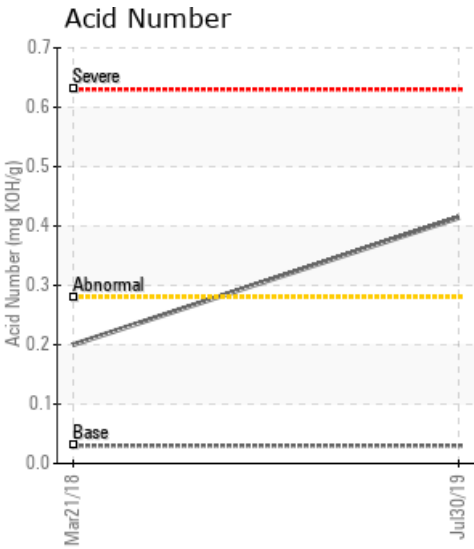
B6/B8 HOT OIL SYSTEM

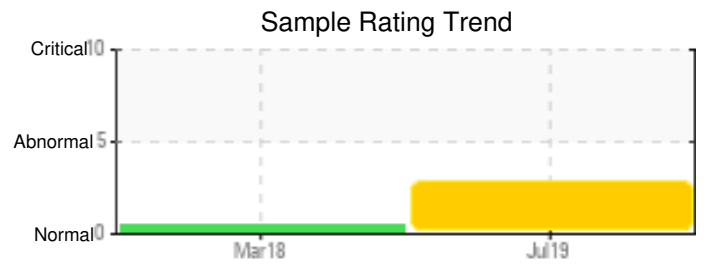
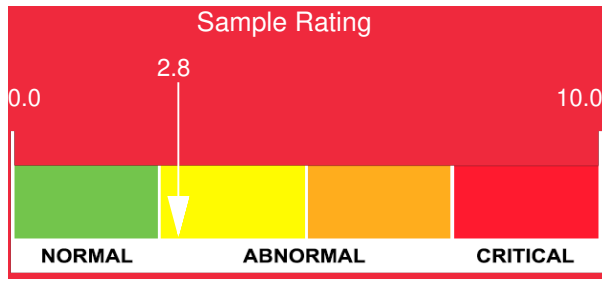
Customer: PTRHTF30052	System Information	Sample Information
I G MACHINES AND FIBER 87 ORENDA RD. BRAMPTON, ON L6W 1V7 Canada Attn: Alan Zhao Tel: (905)457-2880 E-Mail: alan.zhao@iko.com	System Volume: 16000 ltr Bulk Operating Temp: 392F / 200C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: IND. CUMBUSTION & EQ	Lab No: 02302190 Analyst: Lynn Billings Sample Date: 07/30/19 Received Date: 08/12/19 Completed: 08/22/19

Recommendation: The acid number has doubled since last test. Thus, more acidic components in your fluid. The pentane insolubles have drastically increased. The rise in acid number, and slight rise in viscosity and flash point indicates oxidation of the fluid. Filtration will assist in reducing solids in the fluid. The 90% GCD is also marginally on the low side. Would suggest a resample of this unit in 6 months time.

Comments: Pentane Insolubles levels are abnormally high. Acid Number (AN) is abnormally high. (GCD) 90% Distillation Point is marginally low.

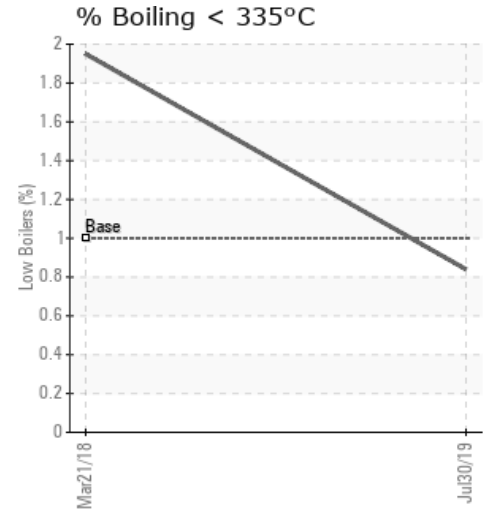
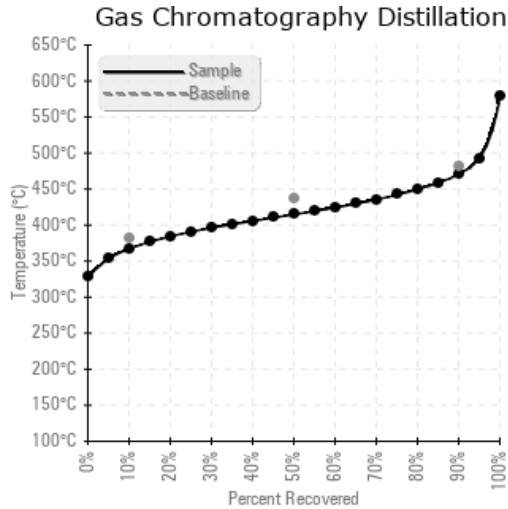
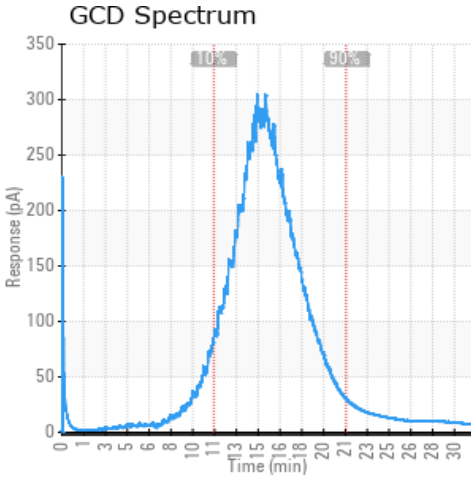
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
07/30/19	08/12/19	0y	PIPING	457 / 236	25.8	37.0	0.414	0.466	692 / 367	779 / 415	879 / 471	0.84
03/21/18	03/27/18	0y		421 / 216	18.4	36.2	0.20	0.041	704 / 373	800 / 427	905 / 485	1.95
Baseline Data				433 / 223		34.2	0.03		720 / 382	817 / 436	900 / 482	1.00





Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
07/30/19	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03/21/18	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Baseline Data				0	0					0		0	0				0					0		

Elemental analysis results (above) in parts per million (ppm). [10,000 ppm = 1.0%]



Historical Comments

03/21/18	Fluid appears to be fine for continued service.

Petro-Canada makes no representation or warranty of any kind, either express or implied, as to the accuracy or completeness of the analysis and assumes no responsibility and shall have no liability whatsoever with respect to such analysis, or a party's use of it. Petro-Canada is a division of HollyFrontier Corporation.