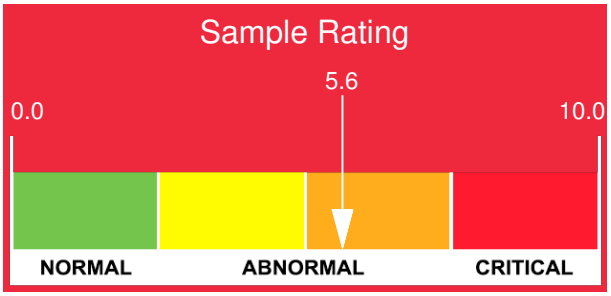
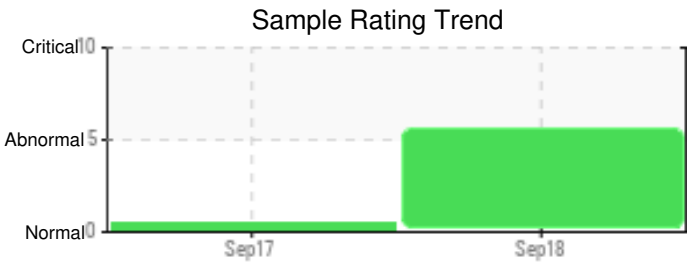
PETRO-CANADA LUBRICANTS





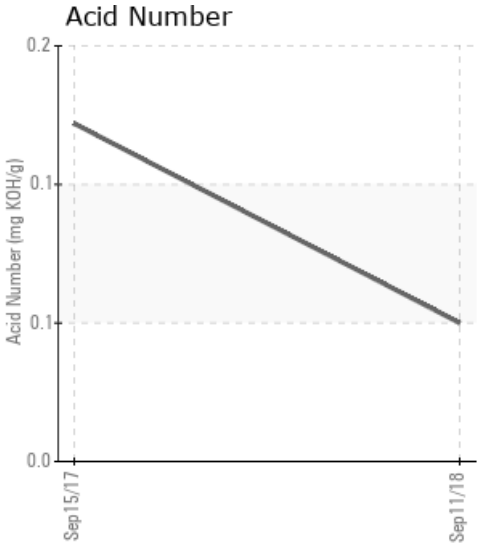
KEYERA NORDEGG 6-10-44-12W5

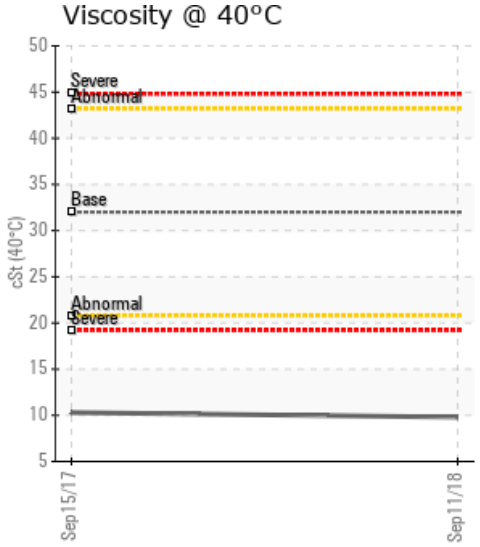
Customer: PTRHTF20174	System Information	Sample Information
Quadra Chemicals 700 4th Ave S.W Suite 470 Calgary, AB T2P 3J4 Canada Attn: Quadra Samples Tel: E-Mail: quadra_samples@quadra.ca	System Volume: 42000 ltr Bulk Operating Temp: 356F / 180C Heating Source: Blanket: Fluid: MOBIL THERMOIL 32 Make:	Lab No: 02242964 Analyst: Kevin McDermott Sample Date: 09/11/18 Received Date: 10/03/18 Completed: 10/04/18 To discuss this report contact Kevin McDermott at (403)215-7052

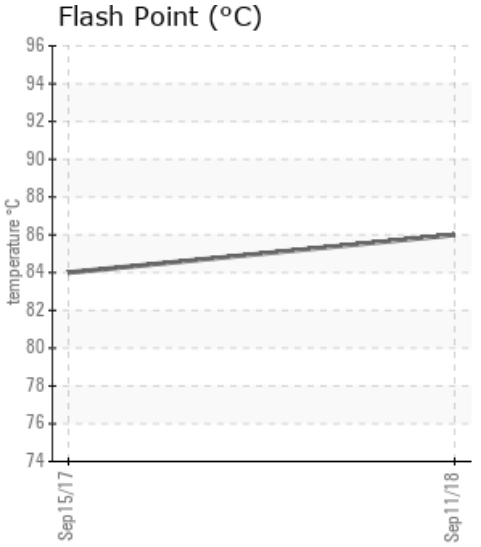
Recommendation: Severely low flash point & viscosity from suspected contamination. Very little change from the previous sample September 2017. As I understand it this fluid has been replaced which is good.

Comments: (GCD) 10% Distillation Point is severely low. COC Flash Point and visc @ 40°c are severely low. Calcium ppm levels are abnormally high. (GCD) 90% Distillation Point is marginally low.

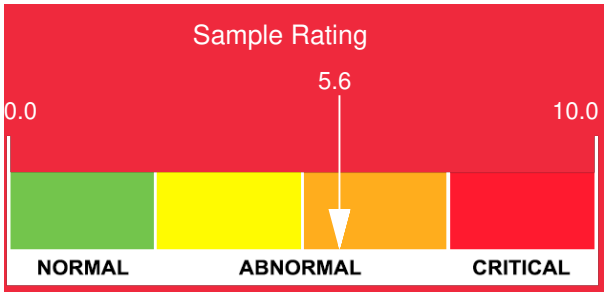
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
09/11/18	10/03/18	0m	956979-2	187 / 86	97.5	9.8	0.05	0.181	468 / 242	701 / 372	849 / 454	41.23
09/15/17	09/28/17	35m		183 / 84	84.0	10.3	0.122	0.092	469 / 243	713 / 379	858 / 459	38.51
Baseline Data				401 / 205		32			705 / 374	783 / 417	858 / 459	

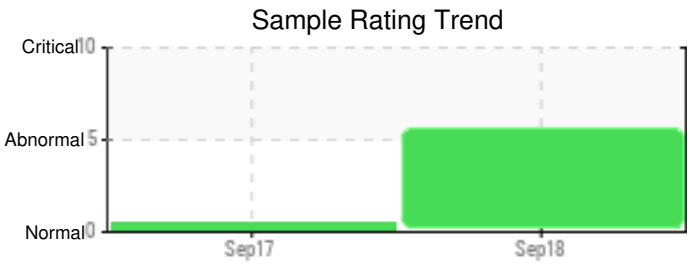






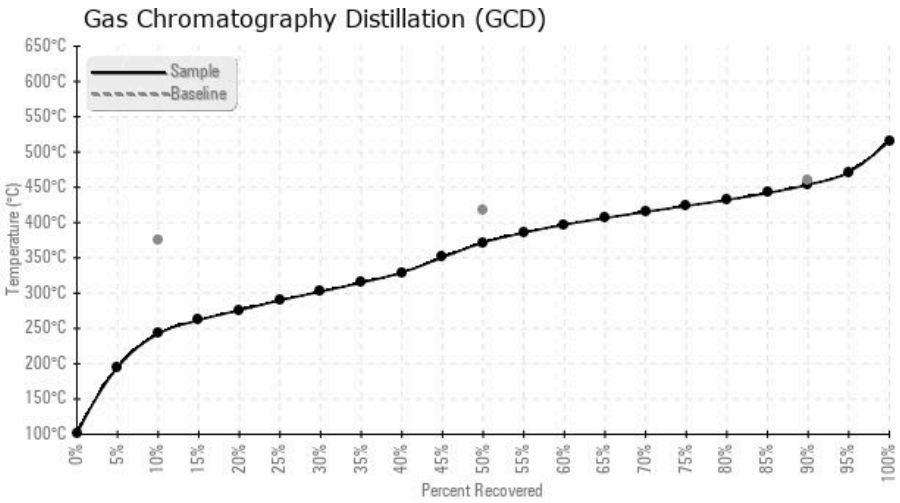
PETRO-CANADA LUBRICANTS

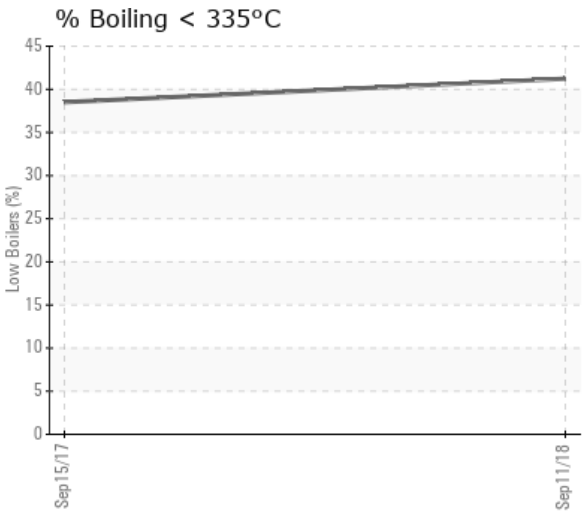




Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
09/11/18	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	36	0	6	0
09/15/17	1	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	43	0	6	0
Baseline Data			0	0						0			0	0					0				0	

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





Historical Comments

09/15/17	Flash Point is very low. Viscosity at for is extremely low indicating thermal cracking. 10% Distillation is very low also indicating thermal cracking. Consideration should be given to changing this fluid out to new fluid. (GCD) 10% Distillation Point is severely low. COC Flash Point is severely low. Calcium ppm levels are severely high. Visc @ 40°C is severely low. (GCD) 50% Distillation Point is marginally low.