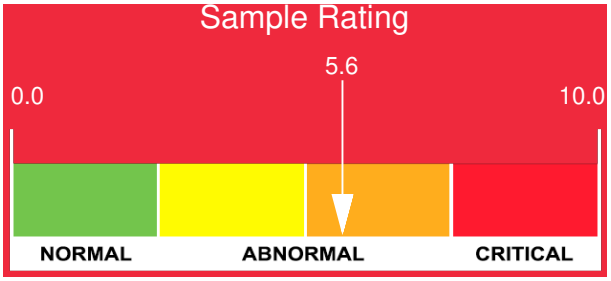
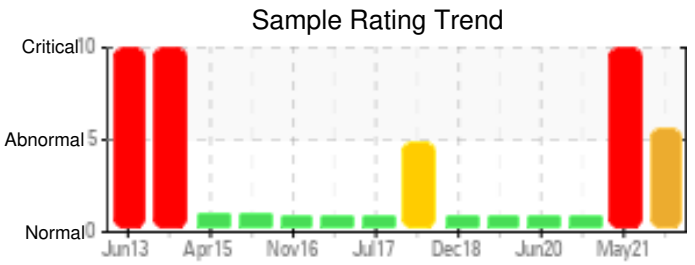




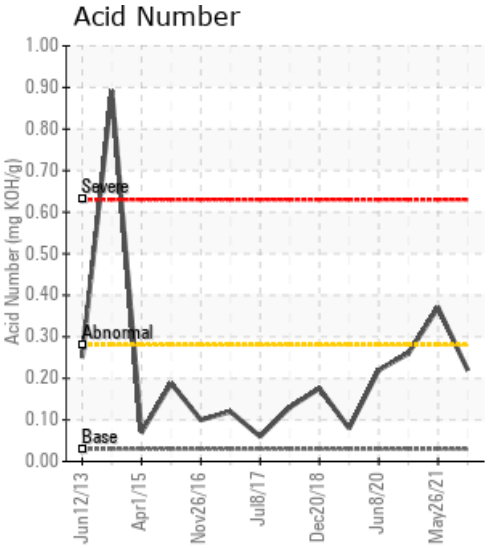
[TOURMALINE, KAKWA / 01-35-60-5-W6] H-720

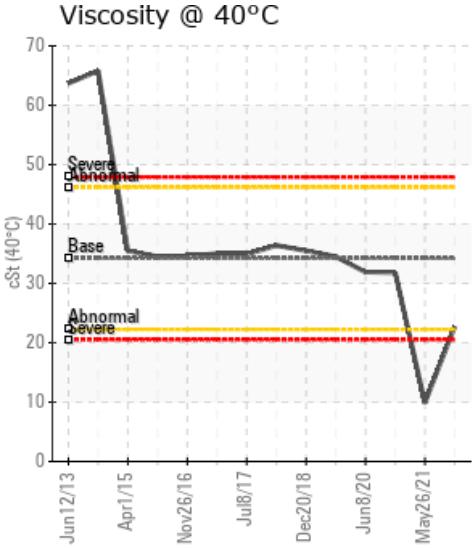
Customer: PTRHTF20175	System Information	Sample Information
QUADRA CHEMICALS 7802 98 STREET CLAIRMONT, AB T0H 0W0 Canada Attn: Quadra Samples Tel: E-Mail: quadra_samples@quadra.ca	System Volume: 19600 ltr Bulk Operating Temp: 338F / 170C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: HEATECH	Lab No: 02427896 Analyst: Clinton Buhler Sample Date: 06/15/21 Received Date: 06/17/21 Completed: 06/18/21 Clinton Buhler Clinton.Buhler@HFSinclair.com

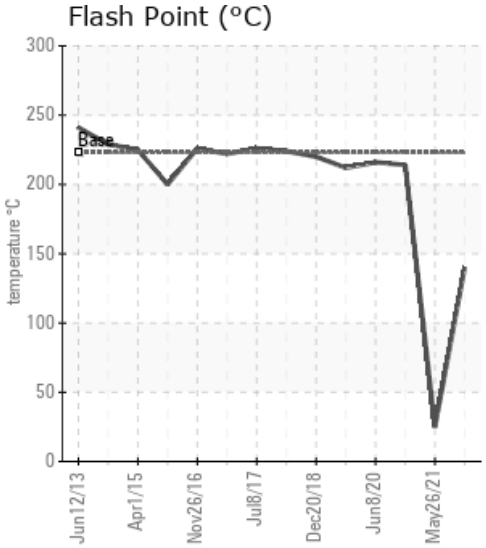
Recommendation: Sample results indicate that the fluid retains properties indicative of contamination with a process fluid (low flash point, fluid viscosity and 10% GCD temperature) although properties show a welcome improvement from the last sample. There is still 11.36% low boiling vapor content in the fluid.Please safely and carefully perform a thorough venting regime of the expansion tank to restore these properties. During the actual venting hours, blanket gas will need to be turned off, but please make sure to re-apply blanket gas for the hours that venting is not happening. After consistent and regular venting of low boiling vapors, please re-sample in 2 months.

Comments: (GCD) 10% Distillation Point is severely low. COC Flash Point is severely low. (GCD) % < 335°C is abnormally high.

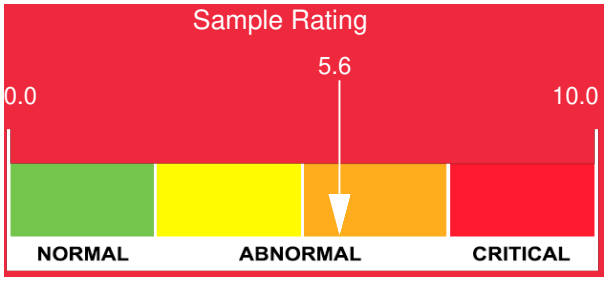
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
06/15/21	06/17/21	7.0y	RETURN LINE	284 / 140	13.4	22.7	0.22	0.226	547 / 286	787 / 419	896 / 480	11.36
05/26/21	06/08/21	7.0y	off expansion tank	77 / 25	4292.4	9.9	0.37	0.089	190 / 88	774 / 412	887 / 475	22.40
12/02/20	12/18/20	7.0y	Heater return	417 / 214	58.6	31.8	0.26	0.527	710 / 377	810 / 432	906 / 486	2.39
06/08/20	06/22/20	3.0y	PUMP DISCHARGE	421 / 216	13.2	31.9	0.22	0.421	710 / 377	811 / 433	906 / 486	2.45
05/30/19	06/06/19	0.0y		414 / 212	14.1	34.5	0.080	0.427	706 / 374	807 / 431	909 / 487	1.49
Baseline Data				433 / 223		34.2	0.03		720 / 382	817 / 436	900 / 482	1.00

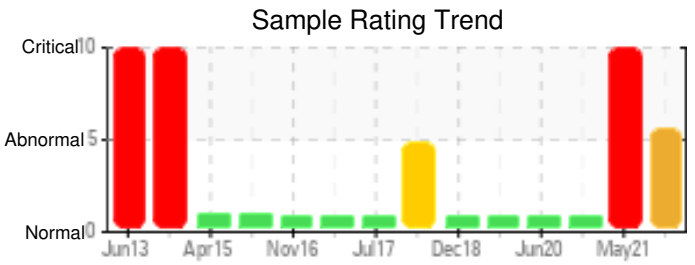






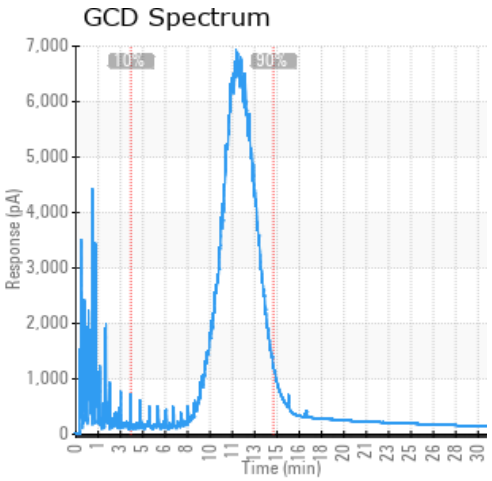
PETRO-CANADA LUBRICANTS

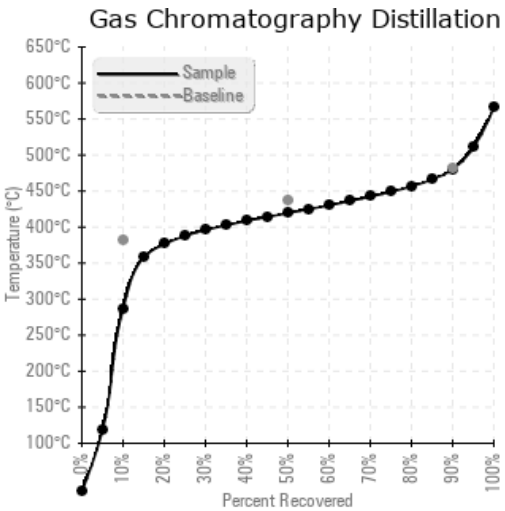


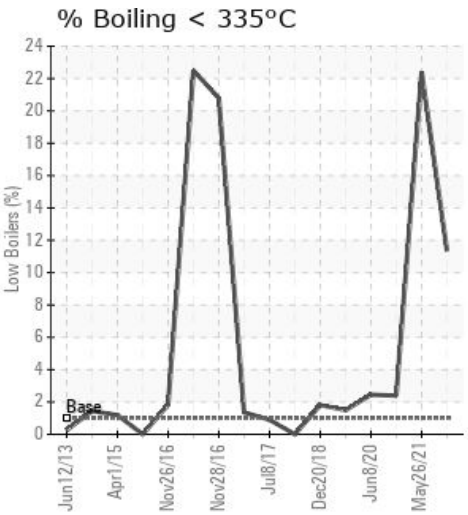


Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
06/15/21	60	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	2	0	0	0	1	0	0	0
05/26/21	15	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
12/02/20	95	0	0	0	0	0	0	0	0	0	2	3	0	0	0	0	2	0	0	0	1	0	0	1
06/08/20	38	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0
05/30/19	40	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	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

05/26/21	*** EXTREMELY LOW FLASH POINT! ***The fluid's flash point is at 25C; that, and along with a viscosity of 9.9, 10% distillation point of 87.7C amongst >4,000 ppm of water and an Acid Number of 0.37, indicate the fluid is in a very compromised state. The fluid's flash point is a safety concern. Continue operation at your own risk. An immediate re-sample needs to be taken and rushed to Wear Check in Burlington, Ontario to confirm these results.Please ensure that the sample is taken from a hot and turbulent zone (pump discharge is best) and that it is purged thoroughly before the sample is taken.Please contact Petro-Canada Lubricants Technical Services to discuss Water contamination levels are severely high. Water contamination levels are severely high.. ppm Water contamination levels are severely high. (GCD) % < 335°C is severely high. (GCD) 10% Distillation Point is severely low. COC Flash Point is severely low. Visc @ 40°C is severely low. Acid Number (AN) is abnormally high.
12/02/20	Fluid remains in very good condition overall. Iron content is rather high which suggests corrosion is or has been taking place. The solids content is quite high - the system could benefit from a slipstream filter to slowly reduce the solids content.
06/08/20	The fluid is in a good condition and suitable for further use. Venting of low boiler vapor to atmosphere on a regular basis is recommended to maintain the vapor % <335C close to that of the fresh oil. Please re-sample in 12 months.
05/30/19	Sample results indicate that the fluid is suitable for continued service.Solids content of 0.427% comparable to last analysis which is positive in that it hasn't increased, but solids content still undesirable. Plans for fluid filtration would be recommended if solids content increases much beyond 0.5%.Continue regular venting of fluid to remove low boiling vapors.Please re-sample in 6-12 months