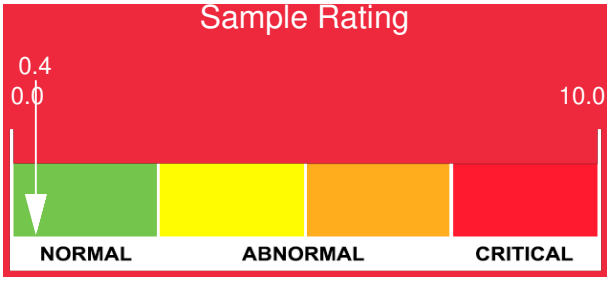
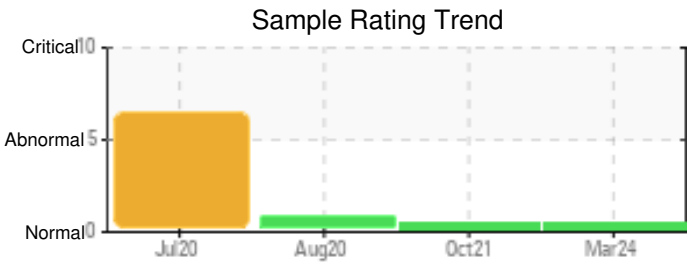




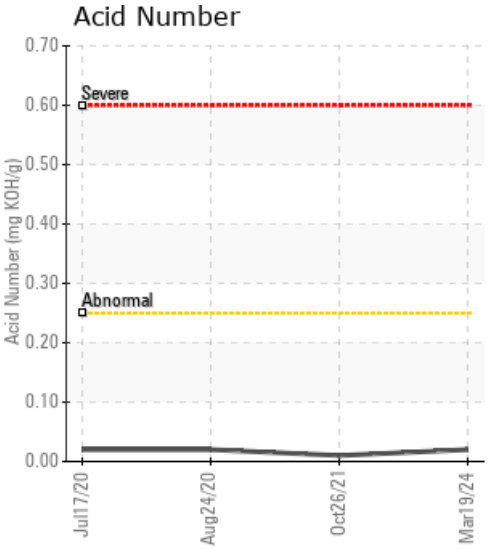
[10-03-52-17W5] TOURMALINE WOLF LAKE

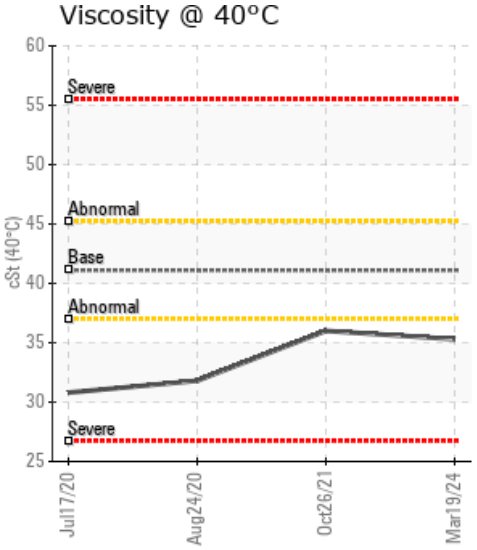
Customer: PTRHTF60075	System Information	Sample Information
Tourmaline 10-03-52-17W5 Edson, AB T7E 1R8 CA Attn: Justin Thebeau Tel: E-Mail: justin.thebeau@tourmalineoil.com	System Volume: 5000 ltr Bulk Operating Temp: 455F / 235C Heating Source: Blanket: Fluid: CHEVRON HEAT TRANSFER OIL 46 Make: PETRO-TECH	Lab No: 02628312 Analyst: Clinton Buhler Sample Date: 03/19/24 Received Date: 04/11/24 Completed: 04/22/24 Clinton Buhler Clinton.Buhler@HFSinclair.com

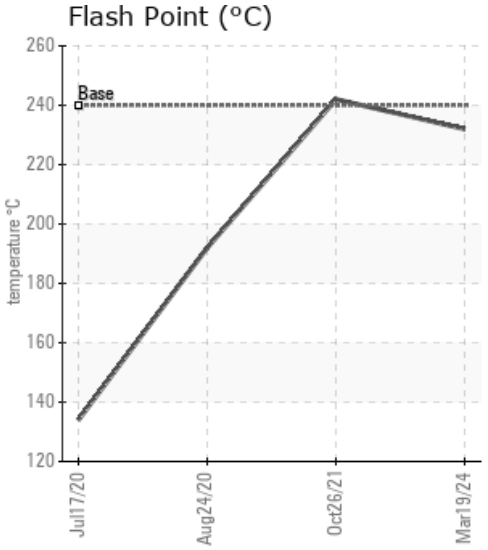
Recommendation: Sample results indicate the fluid is in suitable condition for continued service. Low boiler vapor content has increased to 5.75%; expansion tank venting is helpful in reducing this. Please re-sample in 12 months.

Comments:

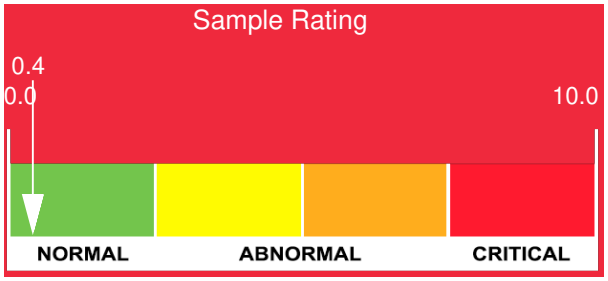
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
03/19/24	04/11/24	8.0y	accumulator	450 / 232	3	35.3	0.02	0.039	710 / 377	806 / 430	925 / 496	5.75
10/26/21	11/25/21	13.0y	FILTER POT	468 / 242	13.9	36.0	0.01	0.046	744 / 396	838 / 448	935 / 502	1.44
08/24/20	09/10/20	13.0y	Inlet piping	378 / 192	45.8	31.8	0.02	0.072	744 / 395	839 / 449	936 / 502	1.86
07/17/20	07/30/20	40000.0y	CL-2007-0667-01	273 / 134	5.7	30.8	0.02	0.030	251 / 121	783 / 417	919 / 493	12.32
Baseline Data				464 / 240		41.1			727 / 386	828 / 442	932 / 500	1.4

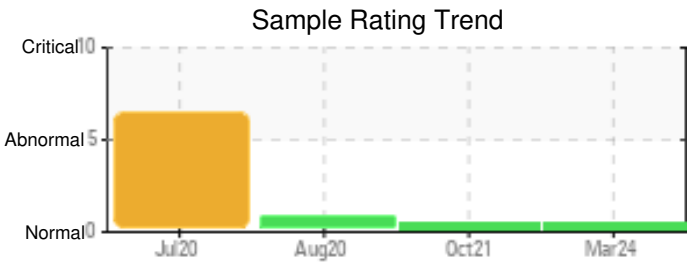






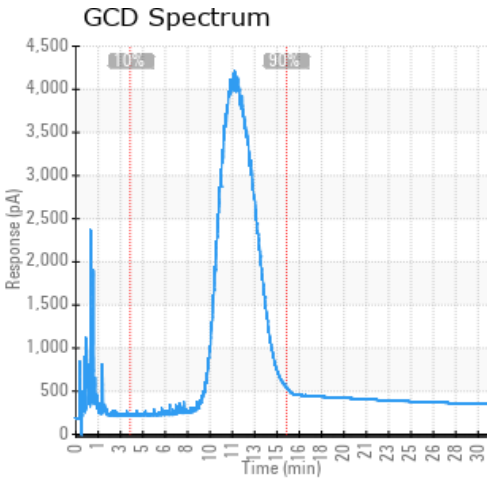
PETRO-CANADA LUBRICANTS

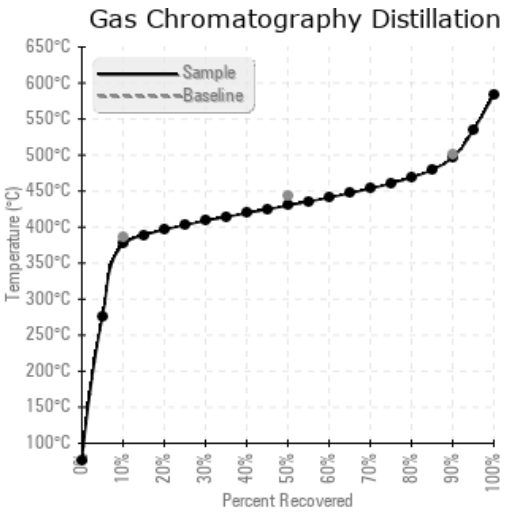


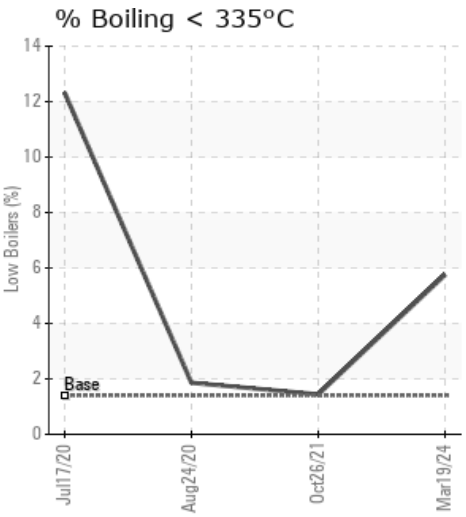


Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
03/19/24	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/26/21	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08/24/20	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	1	0	0	0
07/17/20	1	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 anaysis results (above) in parts per million (ppm). [10,000 ppm = 1.0%]







Historical Comments

10/26/21	The low boilers have been reduced, and the flash point has increased to the original fluid baseline. Resample at the next service interval to monitor.All component wear rates are normal. The water content is negligible. There is no indication of any contamination in the fluid. The AN level is acceptable for this fluid. The condition of the fluid is suitable for further service.
08/24/20	COC Flash Point is low, likely from an accumulation of low boilers. As part of good system maintenance, system should be vented on regular intervals to eliminate low boilers. Resample in 6 months. COC Flash Point is abnormally low.
07/17/20	GCD @ 10% is low indicating the presence of low boilers. AS per our email from you the gas blanket is in place with approximately 200-220 Kpa N2. As part of good system maintenance, regularly vent off the system to eliminate low boilers from the system. This should also restore your flash point of the fluid. Resample in 6 months. (GCD) 10% Distillation Point is severely low. COC Flash Point is severely low. (GCD) % < 335°C is abnormally high. (GCD) 90% Distillation Point is marginally high.