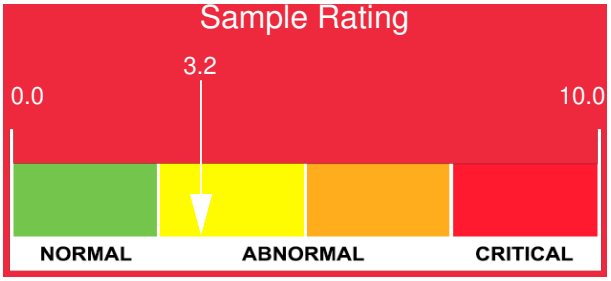
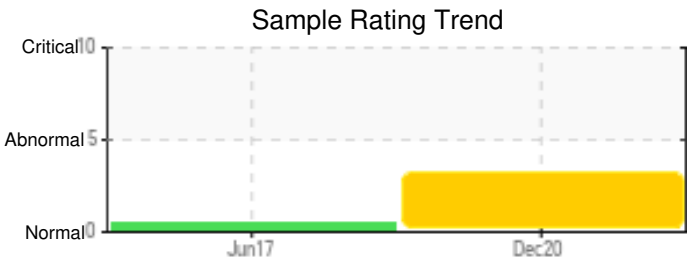




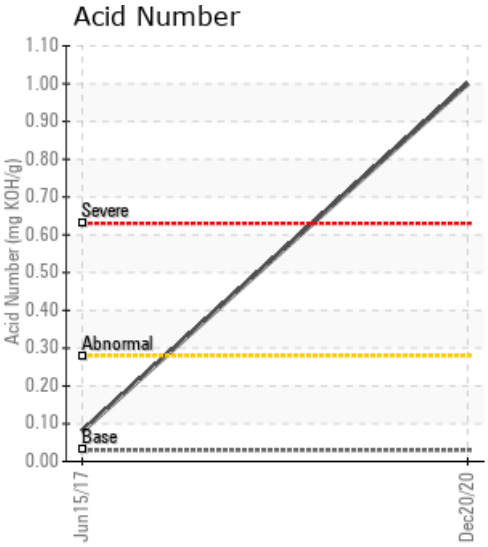
HEAT TRANSFER

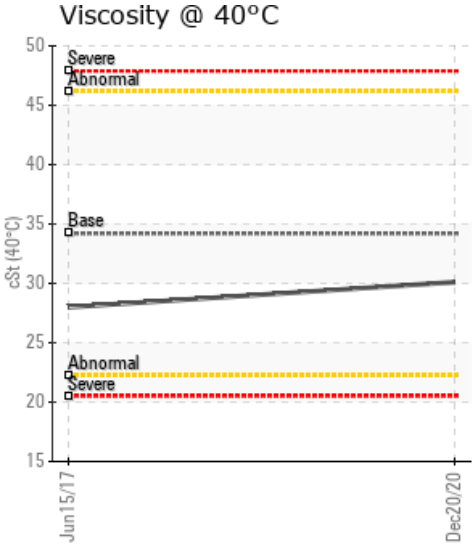
Customer: PTRHTF30103	System Information	Sample Information
ST.JOHNS ASPHALT 178 MAJORS PATH ST. JOHN`S, NL A1A 5A1 Canada Attn: Paul Pendergast Tel: (709)746-8304 E-Mail: ppendergast@pcltd.ca	System Volume: 900 ltr Bulk Operating Temp: 350F / 177C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: GENCOR	Lab No: 02399428 Analyst: Pierre Castagne Sample Date: 12/20/20 Received Date: 01/22/21 Completed: 01/28/21 Pierre Castagne pierre.castagne@petrocanadalsp.com

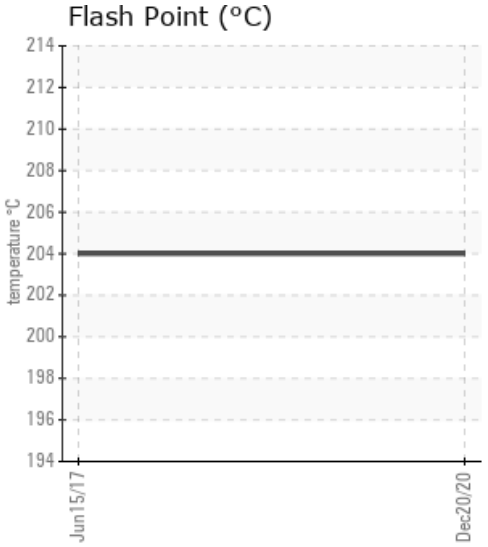
Recommendation: Acid number (AN) is high, flash point is lower then fresh oil flash point. Low boilers (GCD@10%) have decrease, High boilers (GCD@90%) have increase.Some thermal cracking of the oil is taking place.Th heat transfer fluid is OK, for continuous use.

Comments: Acid Number (AN) is severely high.

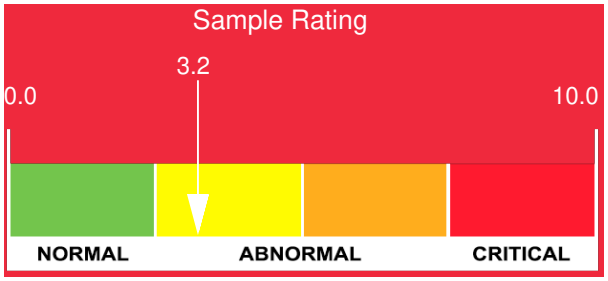
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
12/20/20	01/22/21	3y	Drain valve	399 / 204	14.7	30.1	1.00	0.261	681 / 360	805 / 429	916 / 491	4.60
06/15/17	07/06/17	30y	PUMP INLET	399 / 204	14.5	28.0	0.08	0.552	678 / 359	805 / 430	928 / 498	4.76
Baseline Data				433 / 223		34.2	0.03		720 / 382	817 / 436	900 / 482	1.00

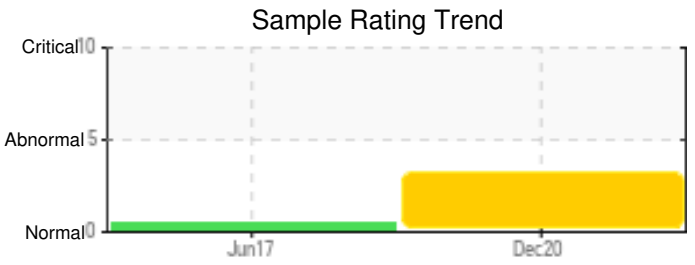






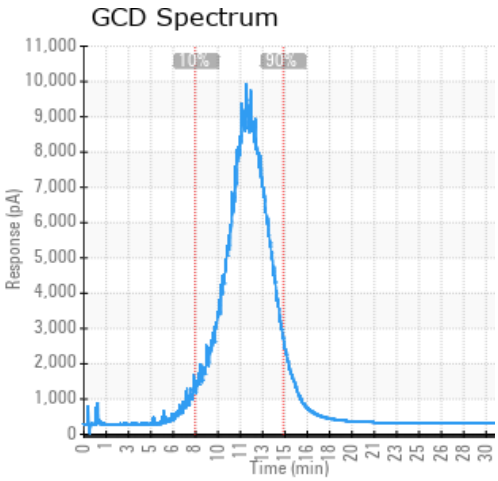
PETRO-CANADA LUBRICANTS

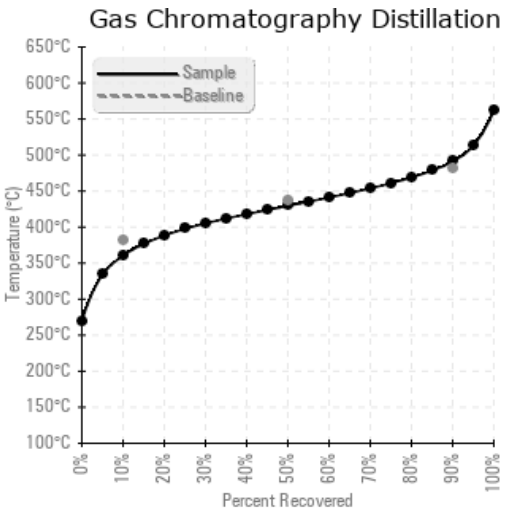


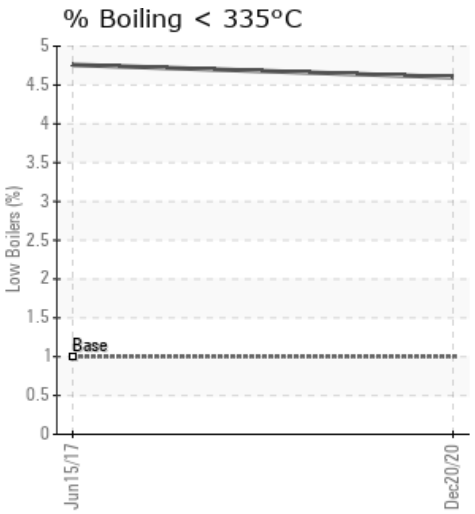


Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
12/20/20	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06/15/17	42	0	0	0	0	4	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	0	0	1
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

06/15/17	We notice trace of Vanadium, which relate to asphalt contamination.The Low Boilers (GCD @10% should be at 382, they are at 358.8). Low boilers lowers the flash point of the oil (flash point should be 224, they currently are 204⁰C).Very light components may turn to gas at operating emperature and lead to pump cavitation.Low boilers, can be remove via venting of the expansion tank.The High Boilers (GCD @90% should be at 482, they are at 497.8).High Boilers, produce High Carbon, Oxydation products, and deposit can settle in the elbows or small lines, settle in low flow disturbance areas and foul heat exchange surfaces. Pentane Insolubles levels are abnormally high. (GCD) 90% Distillation Point is abnormally high.