

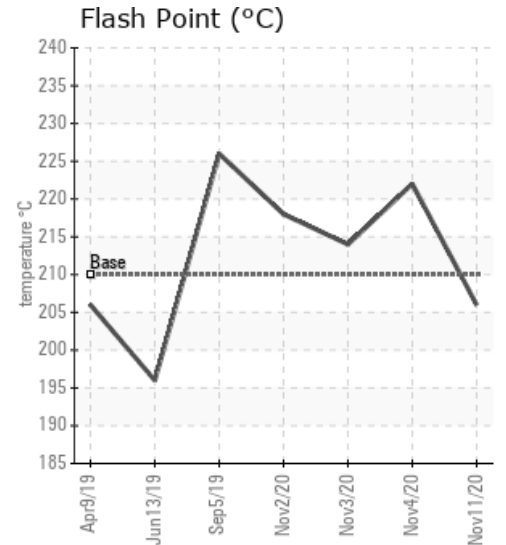
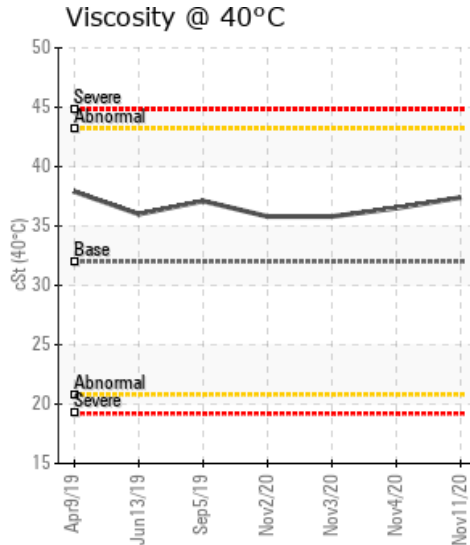
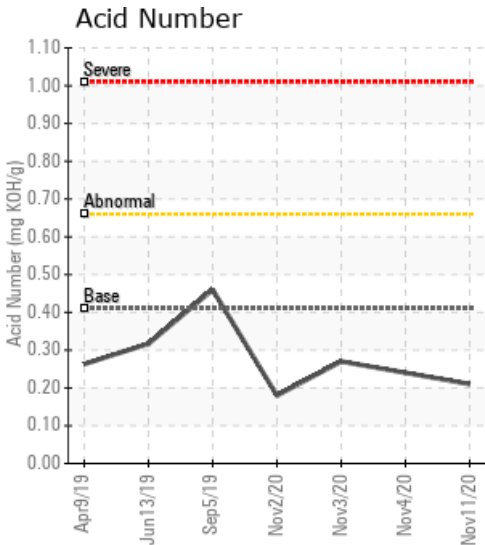
ROSEBURG PEMBROKE

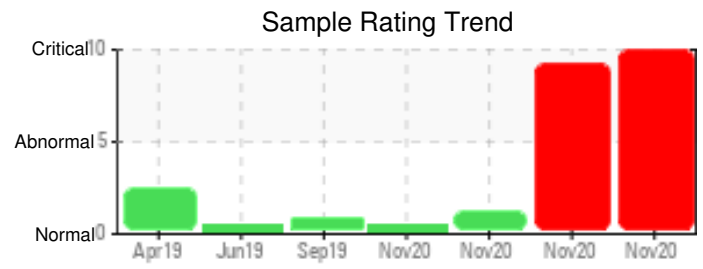
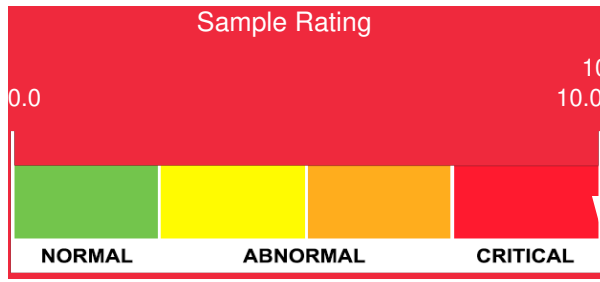
Customer: PTRHTF30101	System Information	Sample Information
Roseburg Pembroke MDF Inc. 777 Fibreboard Drive Pembroke, ON K8A 6W5 Canada Attn: Dan Havis Tel: (613)732-3939 E-Mail: danielh@rfpco.com	System Volume: 100000 gal Bulk Operating Temp: 518F / 270C Heating Source: Blanket: Fluid: HEAT TRANSFER FLUID ISO 32 Make:	Lab No: 02387355 Analyst: Pierre Castagne Sample Date: 11/11/20 Received Date: 11/13/20 Completed: 11/24/20 Pierre Castagne pierre.castagne@hollyfrontier.com

Recommendation: After reviewing the oil analysis result I contacted Robert Boal, Chief Stationary Engineer, Roseburg Forest Products Pembroke MDF, he informed me that they accidentally transferred 500+ liters of coolant in the heat transfer tank. He also mentioned that prior to taking the sample they had transferred the oil into a metal tote to let it cool down. So essentially, the Iron, PQ rating could be related to the oil being in the tote. The high potassium that we are seeing is directly related to the accidental coolant in the heat transfer system. If possible, from a secure area (please do not transfer the oil in any container as this will bias the result), retake the sample and send it back for analysis

Comments: PQ levels are severe. Iron ppm levels are abnormal. Potassium ppm levels are severely high. Pentane Insolubles levels are severely high. Water contamination levels are marginally high. ppm Water contamination levels are marginally high.

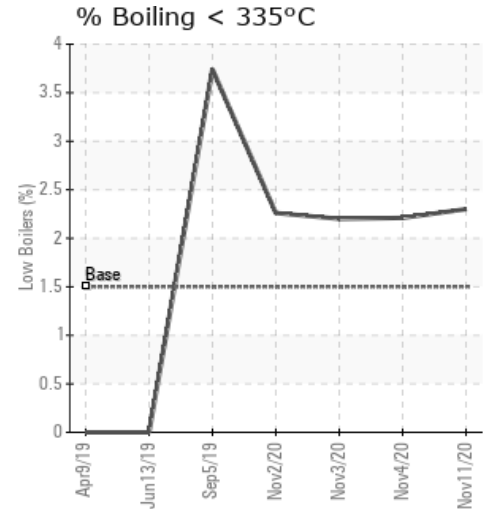
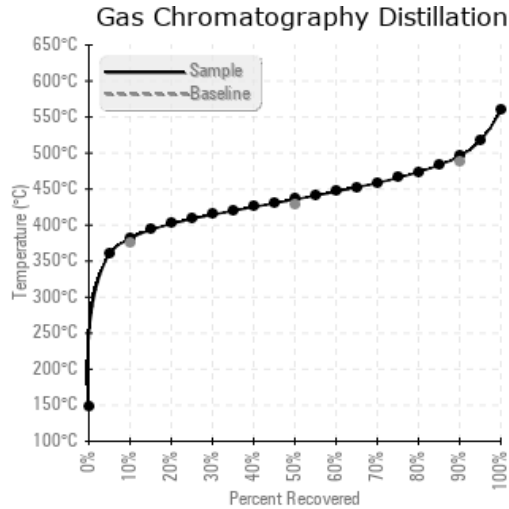
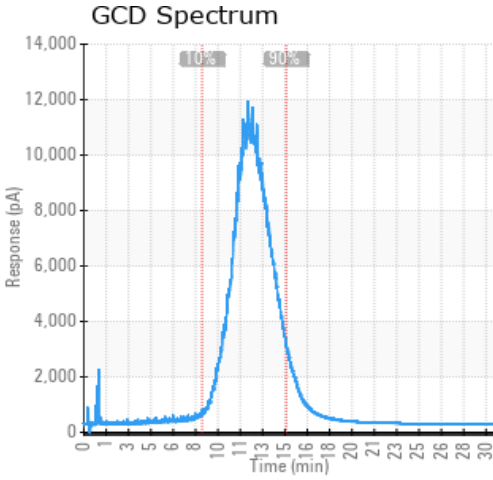
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
11/11/20	11/13/20	12.0h	trf tank - 12h filtr	403 / 206	425.3	37.4	0.21	0.880	718 / 381	816 / 436	924 / 496	2.30
11/04/20	11/06/20	12.0h	after 12 hours	432 / 222	1022.0	36.5	0.24	0.313	719 / 382	817 / 436	925 / 496	2.21
11/03/20	11/06/20	0.0h	cycled once	417 / 214	234.5	35.8	0.27	0.117	719 / 382	816 / 436	926 / 497	2.20
11/02/20	11/06/20	0.0h	Filtration test	424 / 218	18.5	35.8	0.18	0.110	719 / 382	817 / 436	927 / 497	2.26
09/05/19	09/09/19	0.0h		439 / 226	17.8	37.1	0.460	0.168	685 / 363	789 / 421	892 / 478	3.74
Baseline Data				410 / 210		32	0.41		707 / 375	802 / 428	910 / 488	1.5





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
11/11/20	221	0	0	0	0	0	0	0	0	0	2	3	650	0	0	0	3	0	0	1	5	0	6	4
11/04/20	46	0	0	0	0	0	0	0	0	0	0	2	153	0	0	0	0	0	0	0	3	0	4	4
11/03/20	11	0	0	0	0	0	0	0	0	0	0	0	42	0	0	0	0	0	0	0	1	0	3	3
11/02/20	3	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	3	3
09/05/19	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	4
Baseline Data			0	0						0			0	0					5				250	

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



Historical Comments	
11/04/20	Potassium ppm levels are severely high, investigate source of contamination. Water contamination levels are severely high, identify the source of water entry, eliminate the water. GCD Initial Boiling are low. Vent the system. Retake a sample in 1 months. Potassium ppm levels are severely high. Water contamination levels are severely high. ppm Water contamination levels are severely high.
11/03/20	GCD Initial Boiling are low. Potassium PPM level are abnormally high, investigate the presence of high potassium. Vent the system. Resample in 6 months. Potassium ppm levels are abnormally high.
11/02/20	The oil is good for continuous usage. Resample in 6 months.
09/05/19	Our GCD 90% are marginally high, we have slight oxydation of the oil. The oil is Ok for continuous use. (GCD) 90% Distillation Point is marginally low.

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