

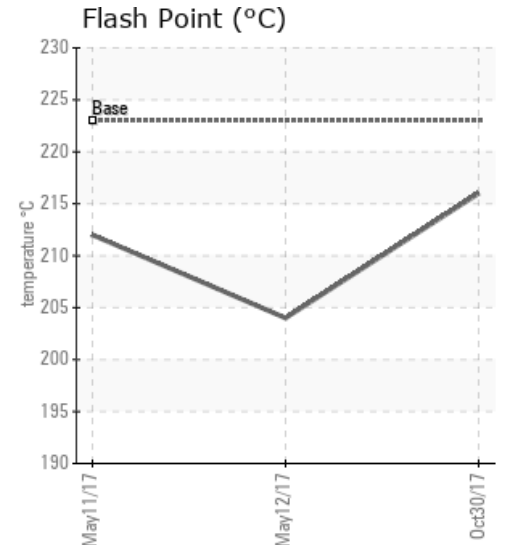
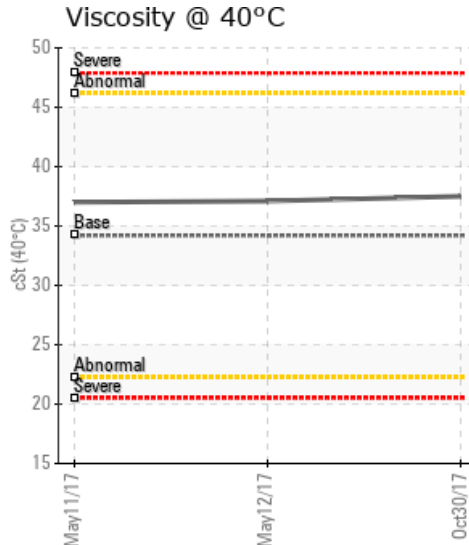
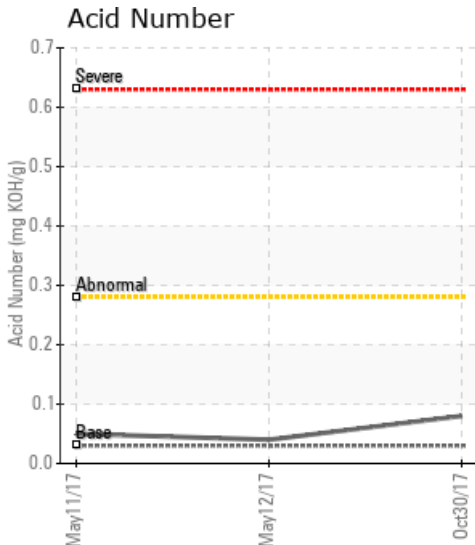
HEAT TRANSFER

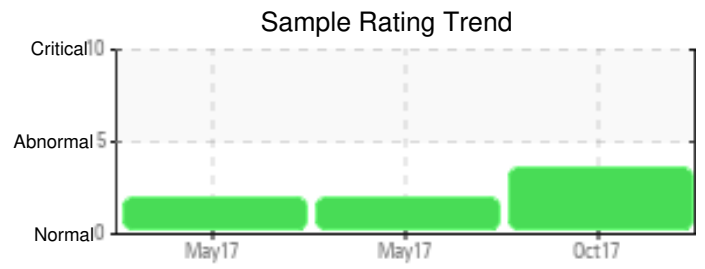
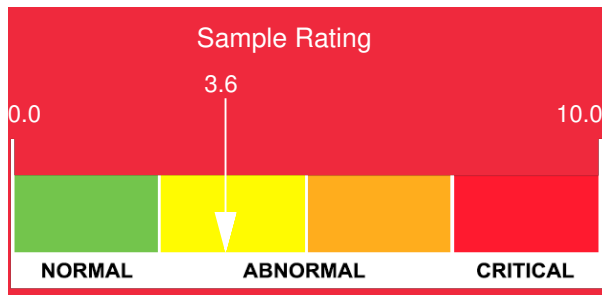
Customer: PTRHTF30101	System Information	Sample Information
Roseburg Pembroke MDF Inc. 777 Fibreboard Drive Pembroke, ON K8A 6W5 Canada Attn: Jeff Kreiger Tel: (613)732-3939 E-Mail: vibration@pembrokemdf.com	System Volume: 100000 ltr Bulk Operating Temp: 518F / 270C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make:	Lab No: 02179815 Analyst: Pierre Castagne Sample Date: 10/30/17 Received Date: 11/02/17 Completed: 11/23/17 To discuss this report contact Pierre Castagne at 905-285-8278

Recommendation: Apart for high Iron, the sample looks good

Comments: PQ levels are abnormal. Iron ppm levels are abnormal. (GCD) 90% Distillation Point is marginally high.

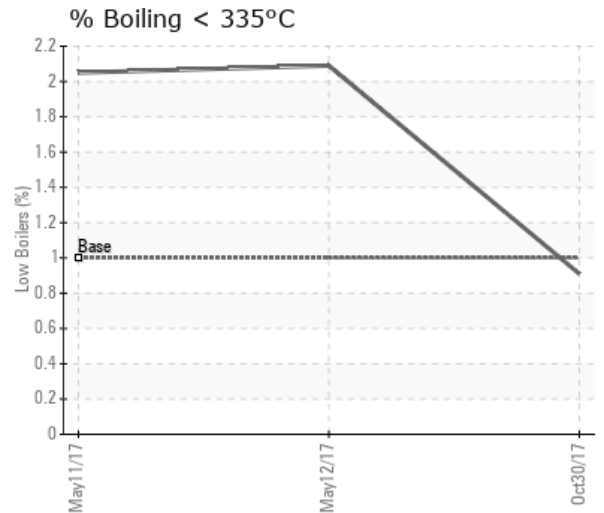
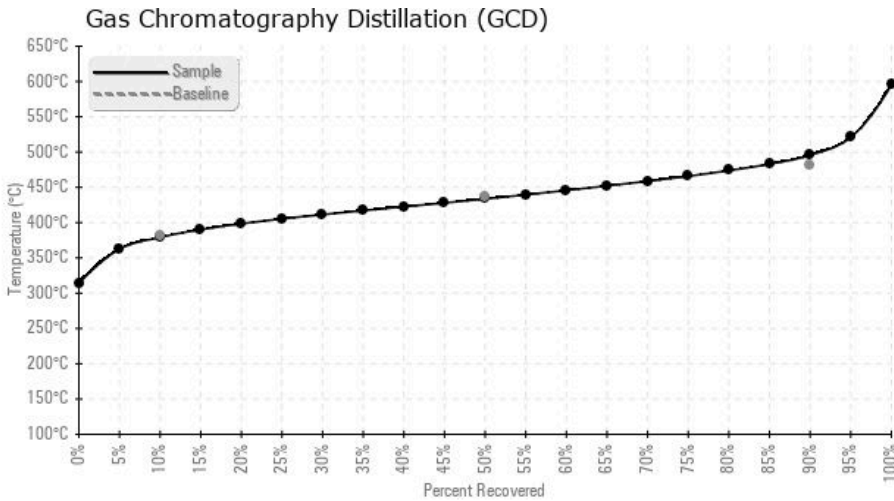
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
10/30/17	11/02/17	0y		421 / 216	41.0	37.5	0.08	0.227	714 / 379	812 / 434	924 / 496	0.91
05/12/17	05/15/17	0y		399 / 204	40.9	37.1	0.04	0.111	714 / 379	821 / 439	944 / 507	2.09
05/11/17	05/15/17	0y		414 / 212	34.9	37.0	0.05	0.083	714 / 379	822 / 439	949 / 510	2.05
Baseline Data				433 / 223		34.2	0.03		720 / 382	817 / 436	900 / 482	1.00





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
10/30/17	152	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
05/12/17	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05/11/17	28	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 analysis results (above) in parts per million (ppm). [10,000 ppm = 1.0%]



Historical Comments	
05/12/17	GCD @ 90% are very high, this impacts the viscosity and carbone deposit (GCD) 90% Distillation Point is severely high.
05/11/17	GCD @ 90% are very high, this impacts the viscosity and carbon deposits (GCD) 90% Distillation Point is severely high.

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