

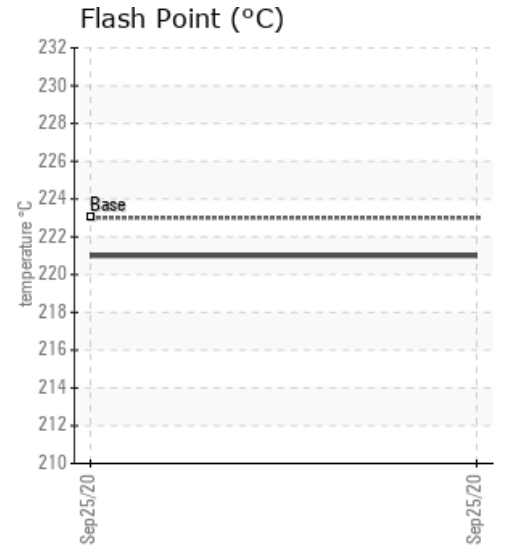
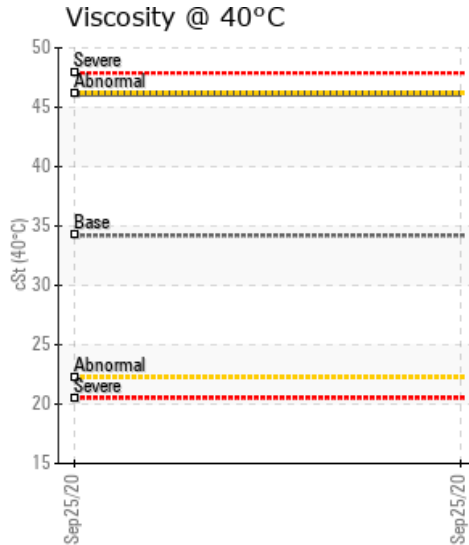
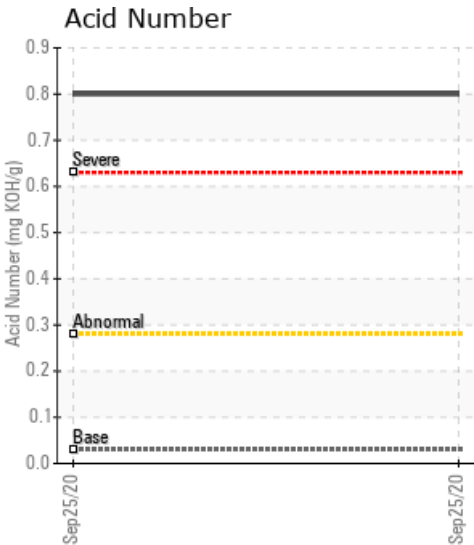
## West Fraser Quesnel - Energy Plant

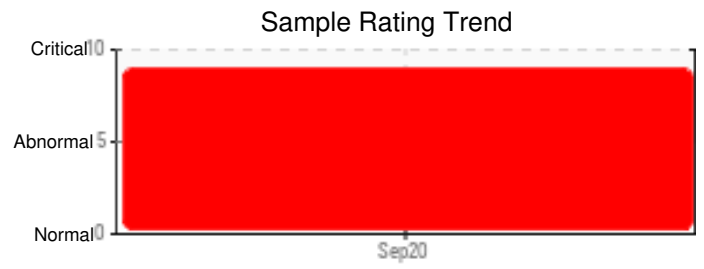
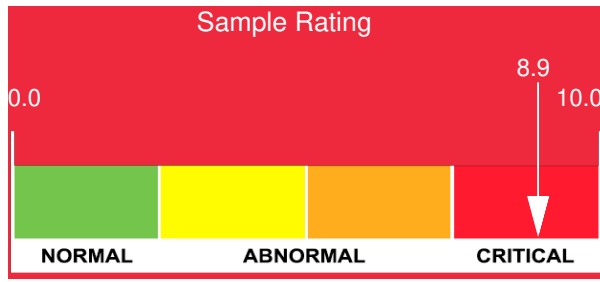
Customer: PTRHTF20242	System Information	Sample Information
WEST FRASER MILLS LTD 1250 BROWNMILLER RD QUESNEL, BC V2J 6P5 Canada Attn: Derek Peterson Tel: (250)991-5408 E-Mail: derek.peterson3@westfraser.com	System Volume: 125000 ltr Bulk Operating Temp: 518F / 270C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: CLASSEN	Lab No: 02379736 Analyst: Ray Rolston Sample Date: 09/25/20 Received Date: 10/06/20 Completed: 10/08/20 Ray Rolston Ray.Rolston@petrocanadalsp.com

Recommendation: The Acid Number (AN) value of 0.80mg KOH/g is approaching the condemning guideline of 1.0. Also, the Initial Boiling Point (IBP) value of 217 deg C is well below the fresh oil value of 316 deg C suggesting that some thermal cracking is occurring. The Gas Chromatography Distillation (GCD) curve front end 'noise' supports this observation. Most importantly, the Pentane Insolubles (solids) content of 0.838 wt% exceeds the condemning limit of 0.5 wt%. It is believed that the fluid in the system is over 20 years old. Petro-Canada Lubricants recommends that the heat transfer system be drained, cleaned, flushed and re-filled to remove carbonaceous material and sludge and restore the heat transfer efficiency.

Comments: Pentane Insolubles levels are severely high. Acid Number (AN) is severely high. (GCD) 90% Distillation Point is abnormally high.

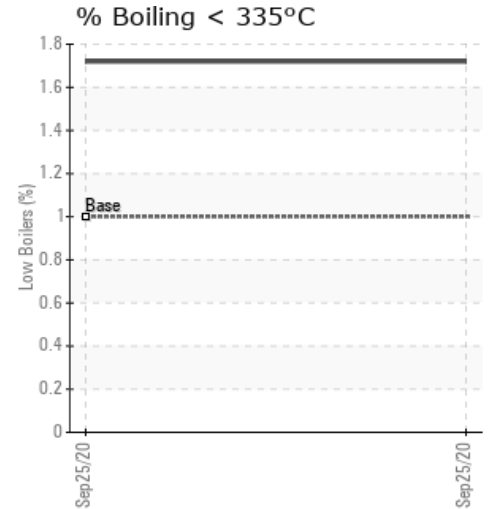
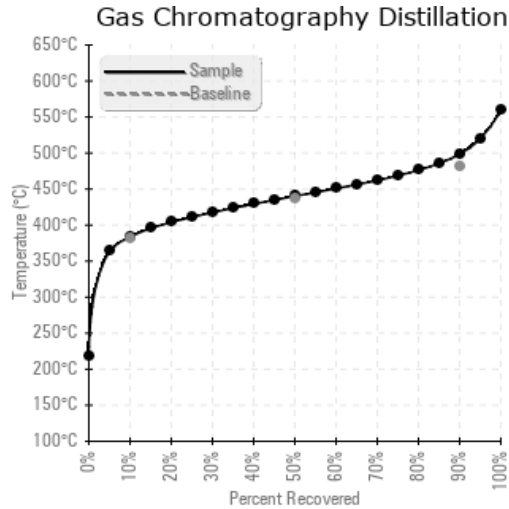
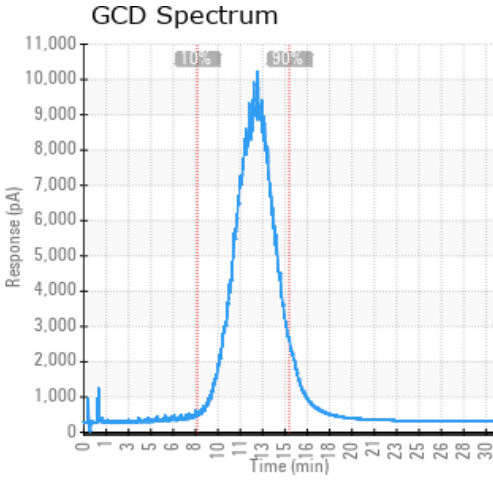
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
09/25/20	10/06/20	20y	Sample Station	430 / 221	62.9	46.1	0.80	0.838	723 / 384	824 / 440	929 / 499	1.72
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
09/25/20	36	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	2	0	0	0	2	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


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