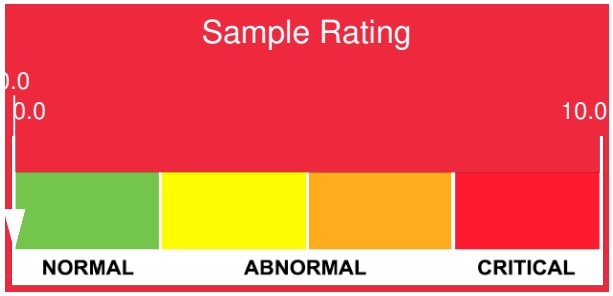
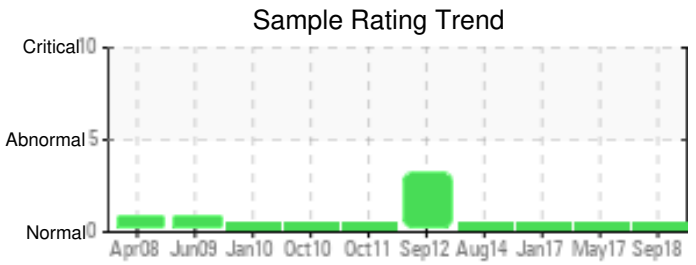




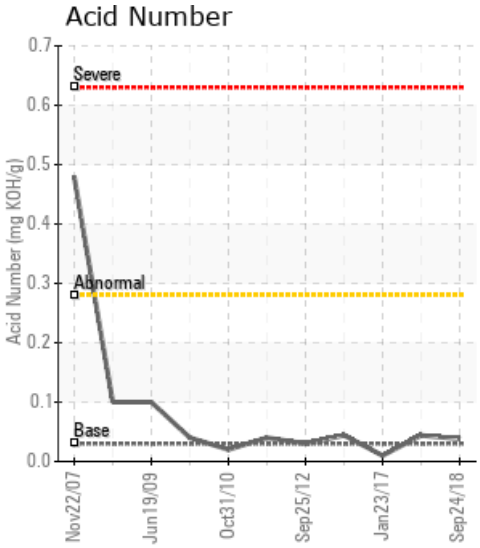
ENERGY PLANT

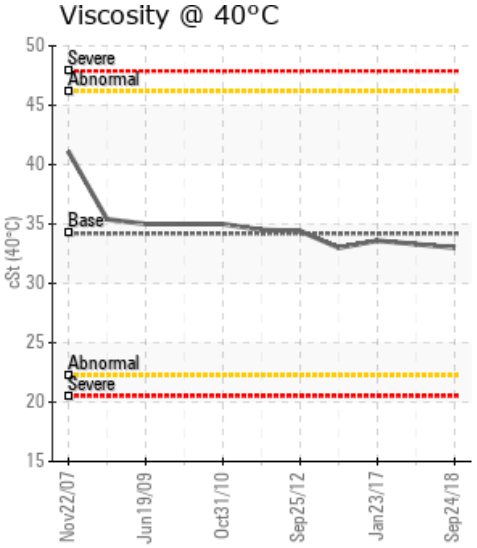
Customer: PTRHTF20080	System Information	Sample Information
WEST FRASER TIMBER CO LTD Hwy 584 Bag #1 SUNDRE, AB T0M 1X0 Canada Attn: BARRY BAY Tel: (403)638-1189 E-Mail: BARRY.BAY@WESTFRASER.COM	System Volume: 110000 ltr Bulk Operating Temp: 495F / 257C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: DELTECH	Lab No: 02242635 Analyst: Gordon Susinski Sample Date: 09/24/18 Received Date: 10/02/18 Completed: 10/04/18 To discuss this report contact Gordon Susinski at (587)582-4118

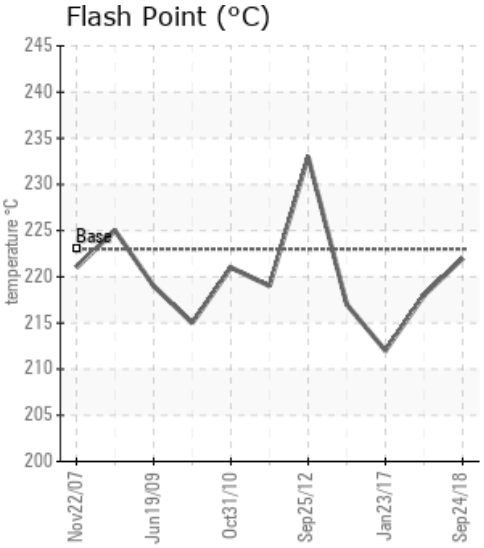
Recommendation: Results are normal.

Comments:

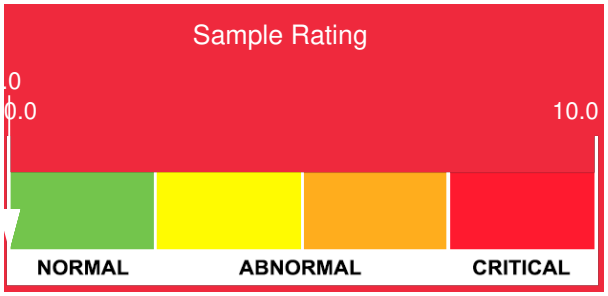
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
09/24/18	10/02/18	11y		432 / 222	14.0	33.0	0.038	0.049	712 / 378	809 / 432	903 / 484	0.00
05/08/17	05/12/17	10y	SUCTION - BACKUP PMP	424 / 218	10.1	33.3	0.044	0.066	704 / 373	814 / 434	916 / 491	1.97
01/23/17	01/27/17	10y	FILL DRAIN LINE	414 / 212	27.6	33.6	0.01	0.033	706 / 375	809 / 431	907 / 486	1.01
08/26/14	09/10/14	7y	FILL DRAIN LINE	423 / 217	42.9	33.0	0.044	0.144	716 / 380	811 / 433	905 / 485	0.00
09/25/12	09/27/12	5y	SUCTION SIDE OF PRIM	451 / 233	776	34.4	0.03	0.013	705 / 374	805 / 430	903 / 484	1.551
10/03/11	10/19/11		FILL/DRAIN LINE	426 / 219	54	34.5	0.04	0.010	707 / 375	808 / 431	904 / 485	1.436
Baseline Data				433 / 223		34.2	0.03		720 / 382	817 / 436	900 / 482	1.00

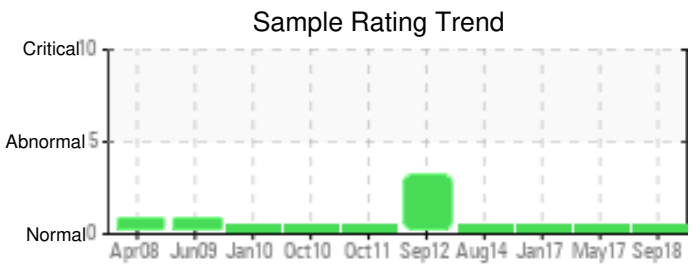






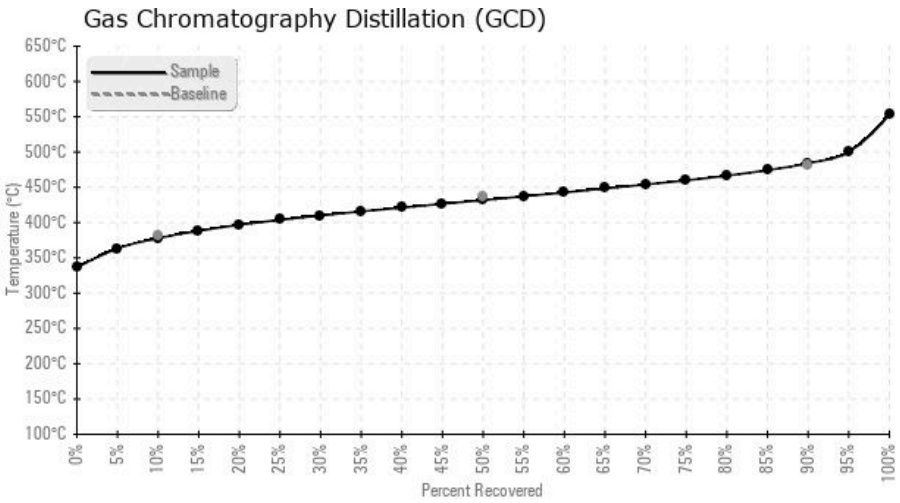
PETRO-CANADA LUBRICANTS

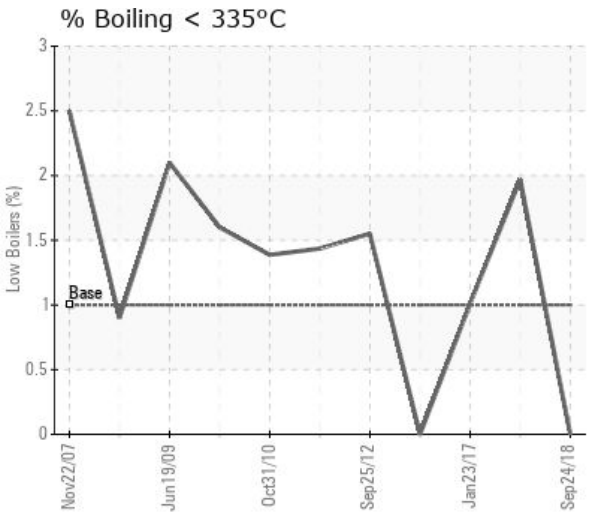




Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
09/24/18	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05/08/17	12	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
01/23/17	13	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
08/26/14	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	2	2
09/25/12	3	0	0	0	0	0	2	0	0	0	1	0	12	0	0	0	0	0	0	0	0	0	2	0
10/03/11	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	7	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

05/08/17	Note the initial boiling point reduction from previous samples. Although this result is within normal limits, the reduction in IBP should be noted.A lower initial boiling point indicates that low boilers maybe present in the sample. This condition is normally due to thermal degradation of the sample, however, there is no other analysis result to support that this degradation has taken place. This result can typically be corroborated by a lower flash point, which in this case it cannot. This leads us to believe that the result may be too small to measure by the flash point test, or perhaps the result may be due to some other deviation? This may also be interpreted as the beginning of thermal degradation process of the system.Low boilers can lead to pump cavitation.All other results are within normal guidelines.We suggest re sampling in 3 months' time to corroborate the reduced IBP result.
01/23/17	Results are normal. Resample at the next PM interval.
08/26/14	Sample is in excellent condition. Sample again at the regular one year interval.
09/25/12	The results are similar to previous samples. However the water jumped to 0.08%. This is not a cause for safety concerns but it brings some questions. is it possible that the sample was collected from an improperly flished sampling valve ? Industry suggests to flush a valve by letting 4-5 times the amount of oil through compared to what it holds so the sample is representative of what circulates in the pipes.
10/03/11	