

## ENERGY PLANT

**Customer: PTRHTF20080**  
 WEST FRASER TIMBER CO LTD  
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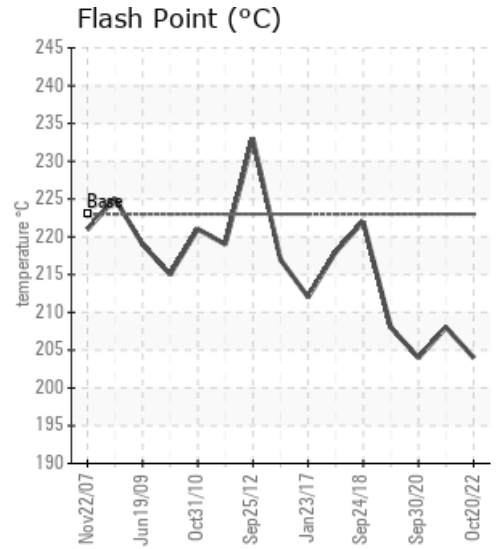
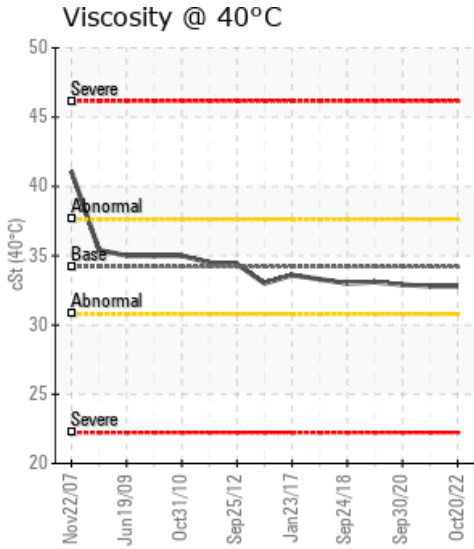
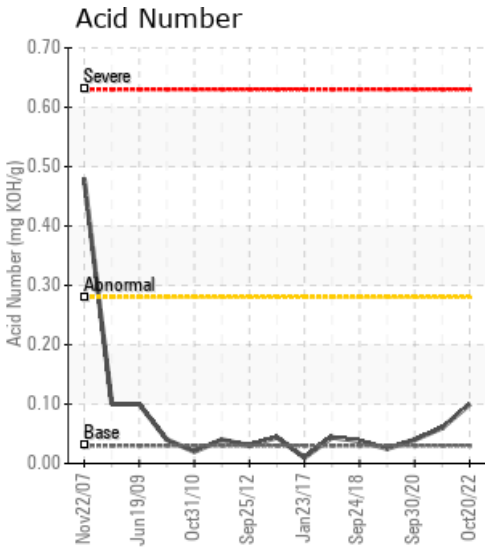
**System Information**  
 System Volume: 110000 ltr  
 Bulk Operating Temp: 495F / 257C  
 Heating Source:  
 Blanket:  
 Fluid: PETRO CANADA PETRO-THERM  
 Make: DELTECH

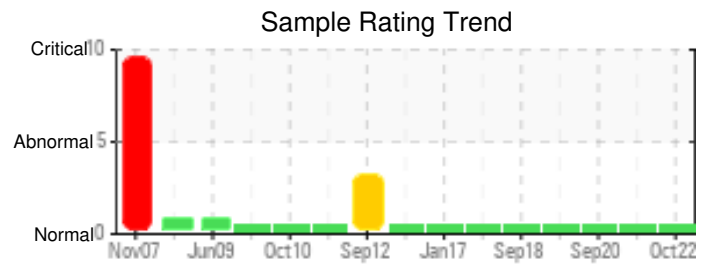
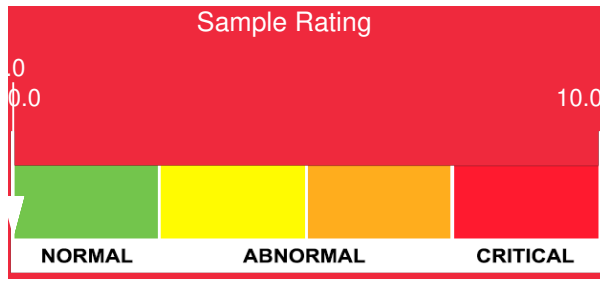
**Sample Information**  
 Lab No: 02518599  
 Analyst: Yutong Gao  
 Sample Date: 10/20/22  
 Received Date: 10/25/22  
 Completed: 10/27/22  
 Yutong Gao  
 yutong.gao@HFSinclair.com

Recommendation: The current fluid has normal viscosity at 40C, normal flash point and distillation points. There is minimum water contamination. Minor fluid oxidation has been taken place over the past 15 years, but it is still well below the condemning limit. Please continue to run the current fluid and take one sample in 12 months to monitor the conditions.

Comments:

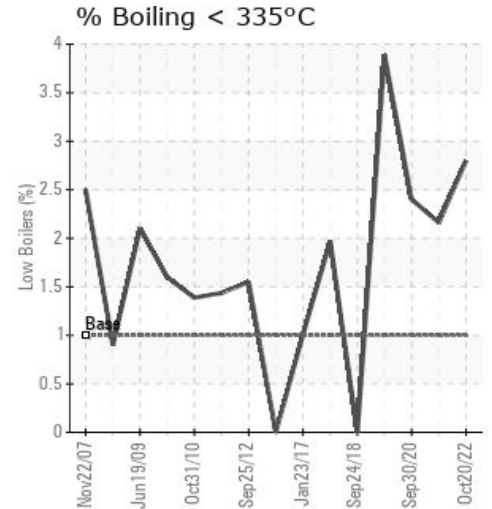
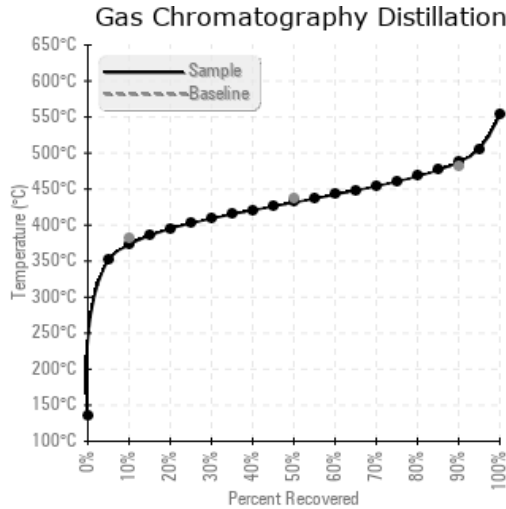
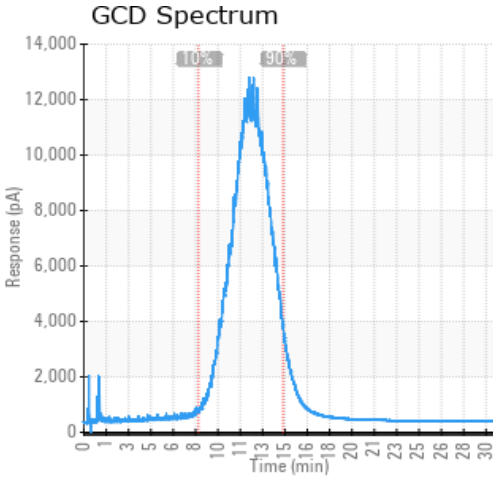
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
10/20/22	10/25/22	15.0y	oil sample station	399 / 204	20.1	32.8	0.10	0.048	703 / 373	808 / 431	909 / 487	2.80
09/28/21	10/13/21	14.0y	oil sample station	406 / 208	26.6	32.8	0.06	0.142	707 / 375	811 / 433	910 / 488	2.16
09/30/20	10/13/20	13.0y	OIL SAMPLE STATION	399 / 204	20.7	32.9	0.04	0.044	704 / 374	810 / 432	909 / 487	2.40
11/13/19	11/19/19	12.0y	SAMPLE STATION	406 / 208	14.9	33.1	0.025	0.050	681 / 361	792 / 422	892 / 478	3.89
09/24/18	10/02/18	11.0y		432 / 222	14.0	33.0	0.038	0.049	712 / 378	809 / 432	903 / 484	0.00
<b>Baseline Data</b>				<b>433 / 223</b>		<b>34.2</b>	<b>0.03</b>		<b>720 / 382</b>	<b>817 / 436</b>	<b>900 / 482</b>	<b>1.00</b>





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
10/20/22	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
09/28/21	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
09/30/20	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/13/19	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
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	
09/28/21	The sample in 2021 has very similar test results as those in 2020, 2019, etc. The current fluid has right viscosity, flash point and distillation points. The water contamination and oil oxidation are minimum. Solid content is higher than the results in previous years, but it is still considered as normal level. The fluid is suitable for further operation. Please take one sample is 12 months to monitor the conditions.
09/30/20	Although results are normal, note minor bump in the sulphur & the slight reduction in the initial boiling point. The gas chromatography results indicate the presence of a lighter hydrocarbon. Resample at the next sample period and continue to monitor the system.
11/13/19	Results are normal. Resample at the next interval to monitor a reduction in the COC flash point, and the increase in the GCD % <335C.
09/24/18	Results are normal.

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