

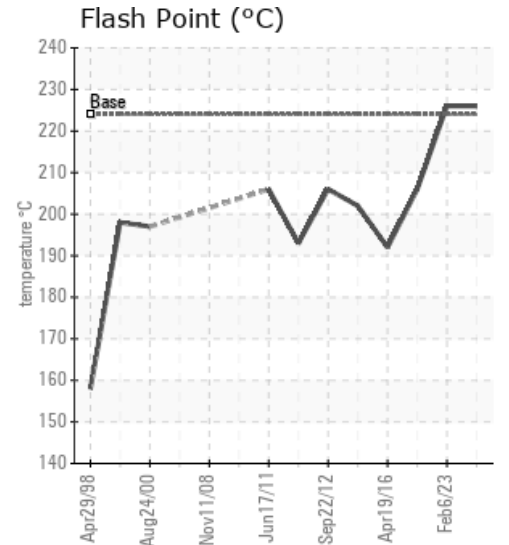
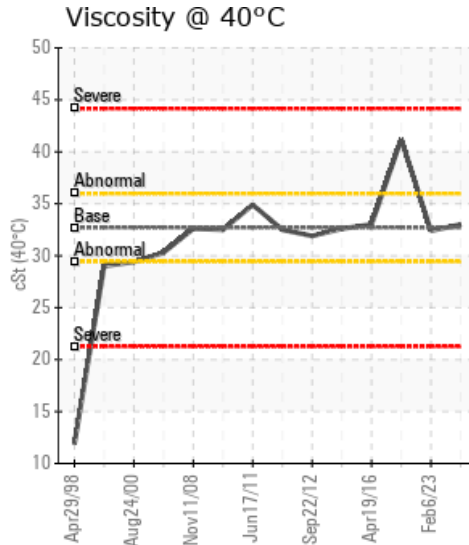
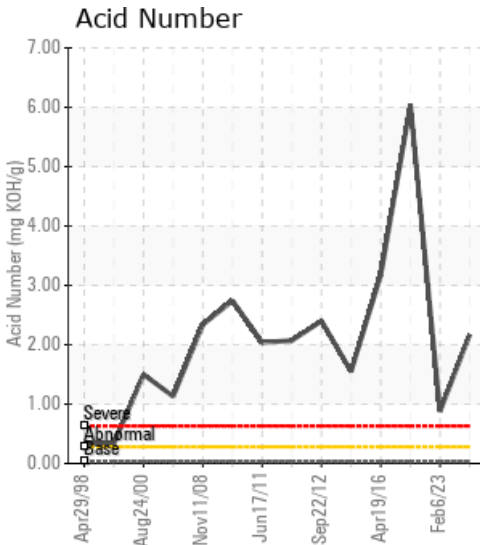
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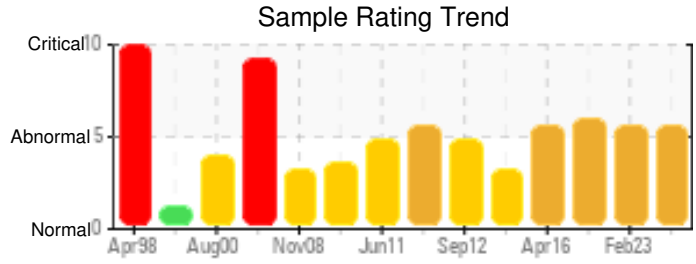
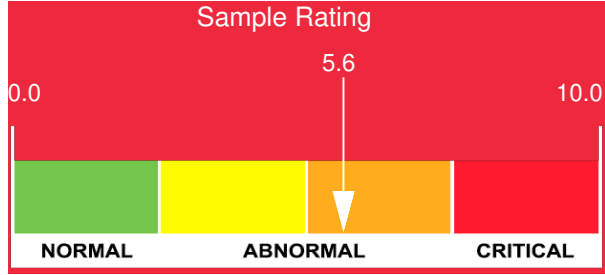
Customer: PTRHTF10012	System Information	Sample Information
GL VENEER 2224 E. SLAUSON AVENUE HUNTINGTON PARK, CA US Attn: Prakash/Marcel Mehta/Dhont Tel: (818)709-0492 E-Mail: purelubricants@earthlink.net	System Volume: 600 gal Bulk Operating Temp: 500F / 260C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO AF Make: PARKER BOILERS	Lab No: 02562409 Analyst: Carlos Nazario Sample Date: 05/10/23 Received Date: 06/06/23 Completed: 06/15/23 Carlos Nazario Carlos.Nazario@hfsinclair.com

Recommendation: The sample test results show a significant increase in the Acid Number and Insolubles. The Heat Transfer Fluid (HTF) has a significant degradation and it is recommended to 'refresh or sweet' the system with up to 20% of fresh HTF in order to continue operating; Resample in 6 months and if trend continue the same, consider to drain the current HTF and flush and clean the system in order to remove sludge and start with a clean system; This action would significantly increase HTF useful life. As previously requested, please provide all pertinent HFT information.

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

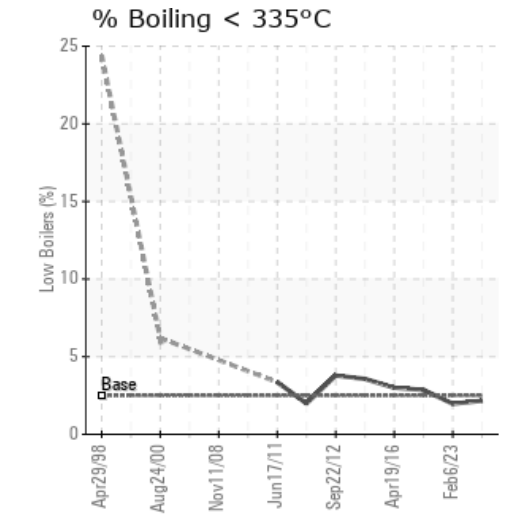
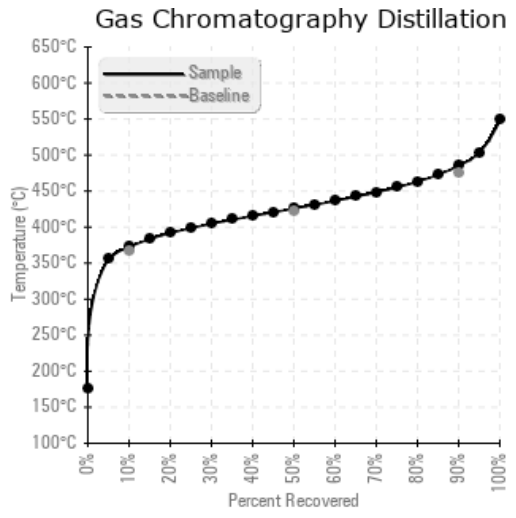
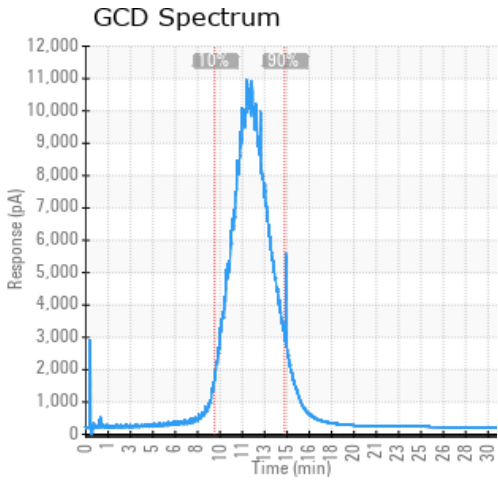
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
05/10/23	06/06/23	30.0d		439 / 226	22.9	33.0	2.17	1.64	702 / 372	798 / 426	905 / 485	2.16
02/06/23	06/06/23	30.0d		439 / 226	79.9	32.4	0.88	0.989	699 / 370	796 / 425	904 / 485	1.97
10/13/22	10/24/22	3.0d		403 / 206	260.5	41.2	6.04	3.50	695 / 368	797 / 425	912 / 489	2.86
04/19/16	04/28/16	4.0d		378 / 192	126.7	33.0	3.17	1.09	688 / 365	794 / 423	905 / 485	3.00
10/12/13	10/28/13	1.0d	PLATTEN LINE	396 / 202	41.7	32.6	1.55	0.257	682 / 361	788 / 420	888 / 476	3.57
Baseline Data				435 / 224		32.7	0.03		693 / 367	790 / 421	887 / 475	2.5





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
05/10/23	46	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	287	12
02/06/23	262	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	0	0	0	2	0	280	3
10/13/22	93	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	267	3
04/19/16	63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	238	2
10/12/13	82	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	4	0	226	3
Baseline Data			0	0						0			0	0					0				270	

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



Historical Comments	
02/06/23	Sample test results showed 3 parameters with abnormal results; Iron presence, Insolubles and Acid number; However, other results as: Kinematic viscosity, COC Flash point and GCD did not show a significant HTF degradation. Previous samples results were analyzed and compared with current one and it was determined that this unit needs to be resampled; please purge 1 to 2 gallons of HTF before the sample is taken for its analysis; Also, include all the pertinent information as: Unit age, Comp age, Unit Volume, time on oil (years or months) time on filter, Sampling temperature, Sample port location, etc. Also mention if the system was refreshed or sweetened with fresh HTF and in what percentage from the total volume. New test results in this system are needed in order to get a good track on this fluid and to make comments and recommendations. Iron ppm levels are abnormal. Pentane Insolubles levels are severely high. Acid Number (AN) is severely high.
10/13/22	AN is severely elevated in conjunction with Pentane insolubles elevated. The GCD 90% distillation point is elevated. This data indicates oxidation and has caused heavy sludge and insolubles in the system. The viscosity has elevated significantly confirming sludge and system fouling. Take another sample and purge oil before capturing sample to confirm results. Pentane Insolubles levels are severely high. Acid Number (AN) is severely high. Visc @ 40°C is abnormally high. (GCD) 90% Distillation Point is marginally high.
04/19/16	Acid number and pentane insoluble are very high. Recommend drain, flush and recharge system with fresh Calflo AF. Pentane Insolubles levels are severely high. Acid Number (AN) is severely high. COC Flash Point is marginally low.
10/12/13	Even though it appears the acid level (Acid Number) dropped a bit, it is still very high and exceeds condemning limits. Therefore we can expect it to rise even further. If an oil change was done then it appears a fair amount of the previously acidic oil was left in the system, or the fluid still sees contamination from an acidic material. If a system cleaning, flushing and refill has not taken place since the last sample we recommend to plan for it so the fluid can look healthy again. Acid Number (AN) is severely high.

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