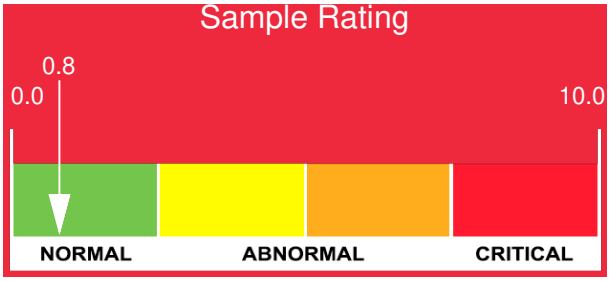
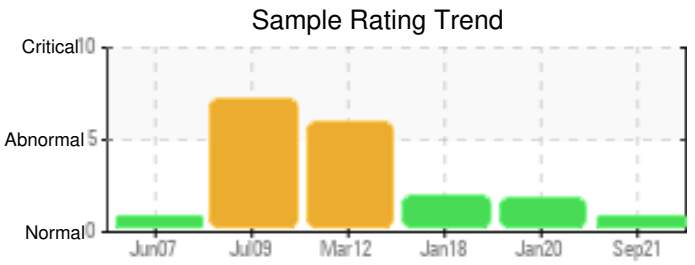




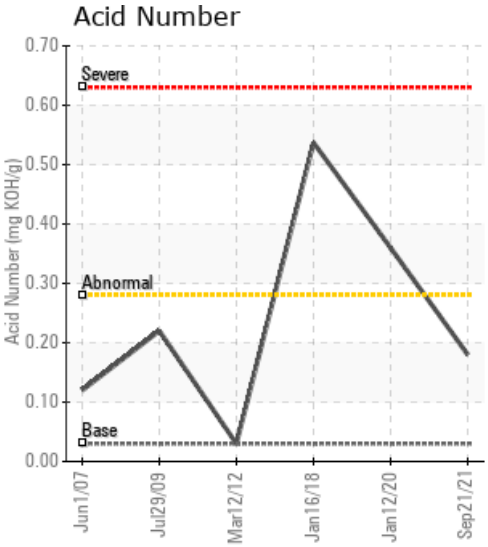
MAIN SYSTEM

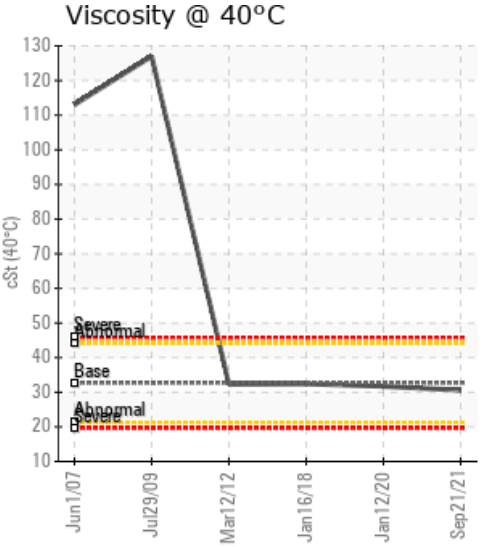
Customer: PTRHTF10035	System Information	Sample Information
CERTAINTEED - SAINT GOBAIN 2701 E. ROOSEVELT RD LITTLE ROCK, AR 72206 USA Attn: MICHAEL MCNULTY Tel: (501)375-9173 E-Mail: michael.e.mcnulty@saint-gobain.com	System Volume: 2600 gal Bulk Operating Temp: 500F / 260C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO AF Make: HEATEC	Lab No: 02448277 Analyst: Garrett Bapp Sample Date: 09/21/21 Received Date: 10/05/21 Completed: 10/19/21 Garrett Bapp Garrett.Bapp@hollyfrontier.com

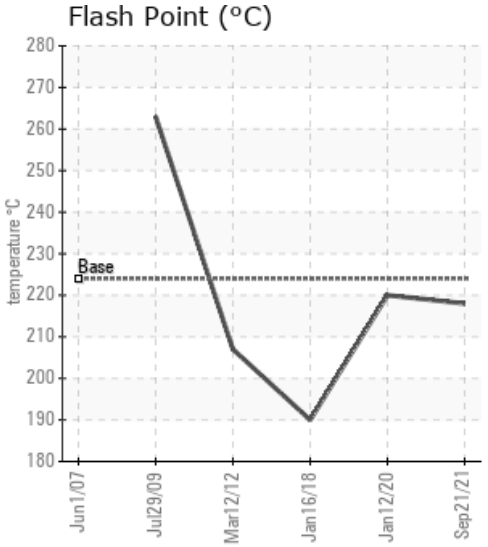
Recommendation: GCD 90% marginally high. All other parameters are within specification. Continue to sample at the current frequency.

Comments: (GCD) 90% Distillation Point is marginally high.

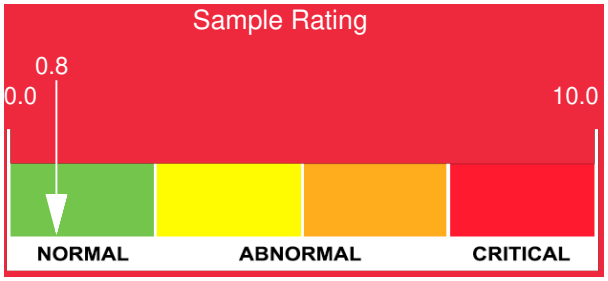
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
09/21/21	10/05/21	0.0h		424 / 218	87.2	30.6	0.18	0.188	703 / 373	802 / 428	906 / 486	1.45
01/12/20	01/13/20	0.0h		428 / 220	14.9	31.7	0.360	0.047	705 / 374	796 / 425	898 / 481	0.00
01/16/18	01/24/18	5.0h		374 / 190	12.6	32.4	0.537	0.256	697 / 369	778 / 414	875 / 469	0.00
03/12/12	03/19/12	14.0h	ML TANK 3 PORT	405 / 207	211	32.3	0.03	0.456	629 / 332	802 / 428	934 / 501	10.43
07/29/09	07/29/09	12.0h		505 / 263	155	127	0.22	0.14	806 / 430		1044 / 562	1.5
Baseline Data				435 / 224		32.7	0.03		693 / 367	790 / 421	887 / 475	2.5

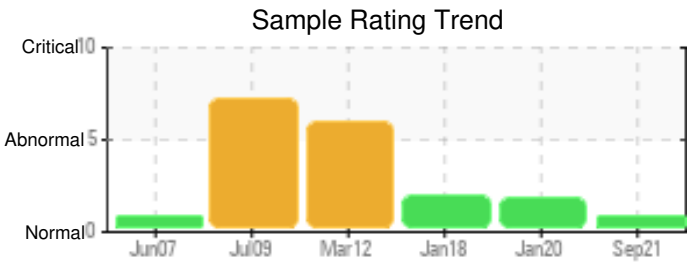






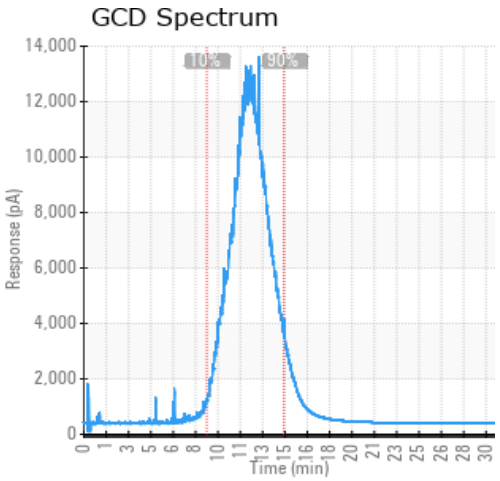
PETRO-CANADA LUBRICANTS

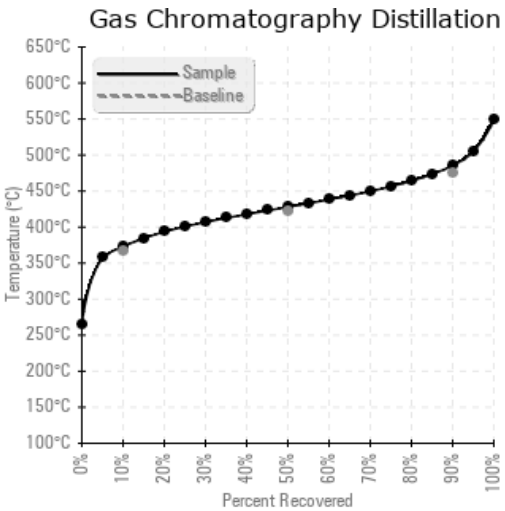


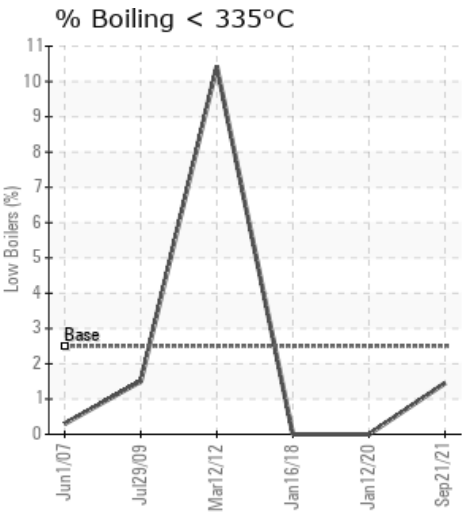


Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
09/21/21	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	57	0
01/12/20	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	99	0
01/16/18	15	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	123	0
03/12/12	22	0	0	0	0	4	0	0	0	0	1	0	0	0	0	0	0	0	7	0	197	0	111	0
07/29/09	127	0	0	0	1	0	2	0	0	0	0	4		0	0		1			2	19	0	34	0
Baseline Data			0	0						0			0	0					0				270	

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







Historical Comments

01/12/20	For the first time in many years the properties all look normal with only the Acid Number still a bit high, although it dropped since the last sample. Resample at the next scheduled interval while ensuring that the nitrogen blanket works and the oil doesn't flow through the expansion tank during normal operation. if the Acid Number starts rising again on the next sample we may recommend to sweeten the system but no action needed at this time. Acid Number (AN) is abnormally high.
01/16/18	The lab failed to merge this analysis with the last results from 2012 after the system cleaning, but we will resolve this tomorrow as the plant needs the results ASAP. Indeed, the oil shows a high level of oxidation as seen by the high Acid Number. While the results confirm advanced oxidation, the oil is not loaded with metals and solids as one would expect when hearing that a tank got so corroded that it leaked. let's discuss these results in terms of options of actions to take besides replacing the corroded tank. If evidence exists of flow issues and temperature issues due to fouled pipes, then a system cleaning and/or metal replacement may be warranted. Otherwise, a fluid drain, flush and refill may be sufficient. Acid Number (AN) is abnormally high. COC Flash Point is marginally low.
03/12/12	This is the first sample since the big clean up in 2010. The oil appears relatively good, viscosity and Total Acid Number being normal. We see a certain amount of calcium, which could come from detergents from the pre-cleaner used in the operation. Although the solids contamination is also high which could indicate the calcium may come from airborne dust from your filler pile. We will send a reminder in December to re-sample.
07/29/09	