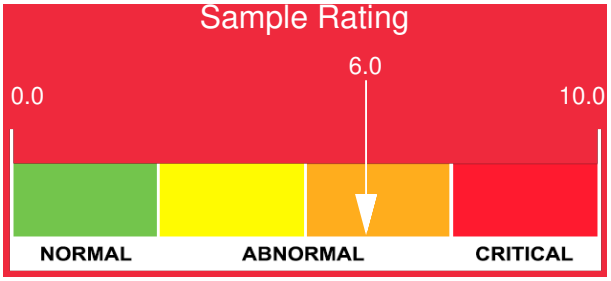
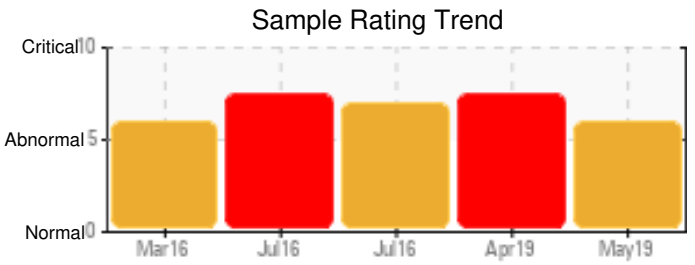




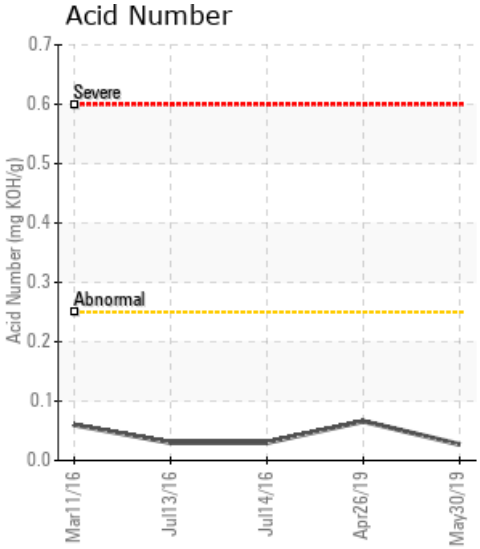
VEOLIA NORTH AMERICA CHICAGO BIOSOLIDS

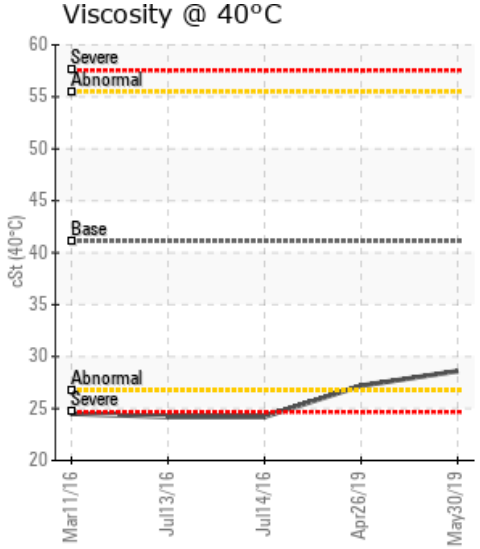
Customer: PTRHTF30090	System Information	Sample Information
VEOLIA NORTH AMERCIA 6001 W. PERSHING RD CICERO, IL 60804 USA Attn: Richard Jania Tel: (708)652-0575 E-Mail: richard.jania@veolia.com	System Volume: 38200 gal Bulk Operating Temp: 585F / 307C Heating Source: Blanket: Fluid: CHEVRON HEAT TRANSFER OIL 46 Make: GTS ENERGY INC	Lab No: 02289703 Analyst: Yvette Trzcinski Sample Date: 05/30/19 Received Date: 06/07/19 Completed: 06/14/19 Yvette Trzcinski yvette.trzcinski@petrocanadalsp.com

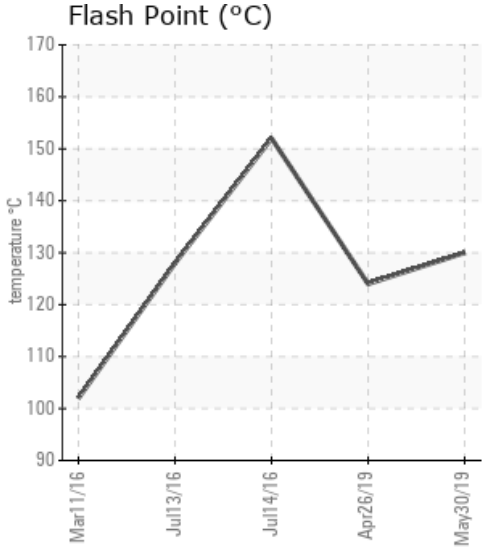
Recommendation: This sample is from the drain and fill tank May 30 2019 - Chevron 46 HTF fluid. Fluid is heavily contaminated with solids and thermally cracked light ends. Recommend to remove this fluid from the Drain and fill tank and not use to recharge the system

Comments: COC Flash Point is severely low. (GCD) 10% Distillation Point is abnormally low. (GCD) % < 335°C is marginally high.

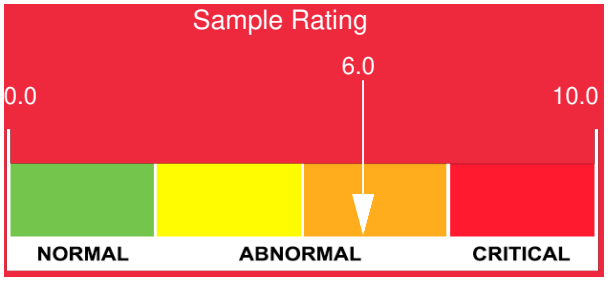
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
05/30/19	06/07/19	3y	FILL DRAIN TANK	266 / 130	18.0	28.6	0.027	0.166	646 / 341	816 / 435	924 / 496	9.04
04/26/19	05/07/19	3y	DRAIN PORT FROM SIDE	255 / 124	3.3	27.2	0.066	0.026	700 / 371	824 / 440	928 / 498	5.09
07/14/16	07/14/16	0y		306 / 152	0.00	24.2	0.03	0.101	573 / 301	797 / 425	934 / 501	13.49
07/13/16	07/14/16	0y		262 / 128	0.00	24.2	0.03	0.175	572 / 300	799 / 426	946 / 508	13.47
03/11/16	03/21/16	9y	#1 SECONDARY LOOP	216 / 102	0.1	24.5	0.06	0.044	811 / 433	887 / 475	980 / 527	2.67
Baseline Data				464 / 240		41.1			727 / 386	828 / 442	932 / 500	1.4

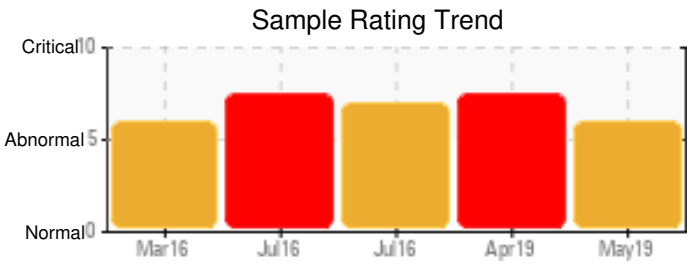






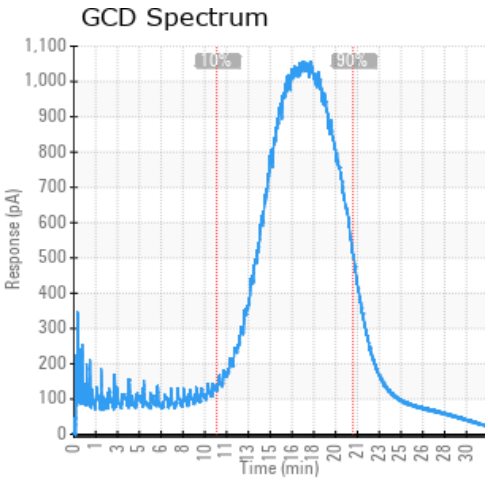
PETRO-CANADA LUBRICANTS

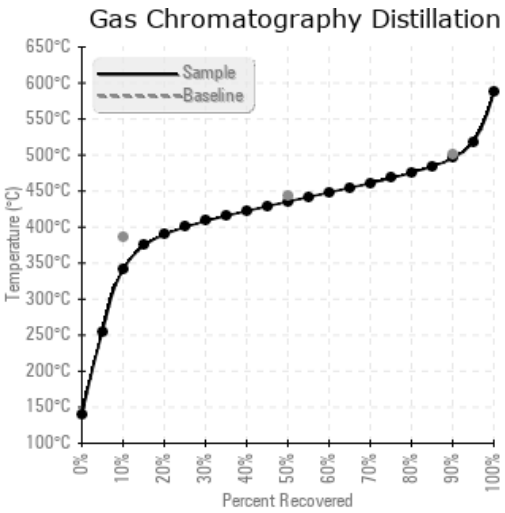


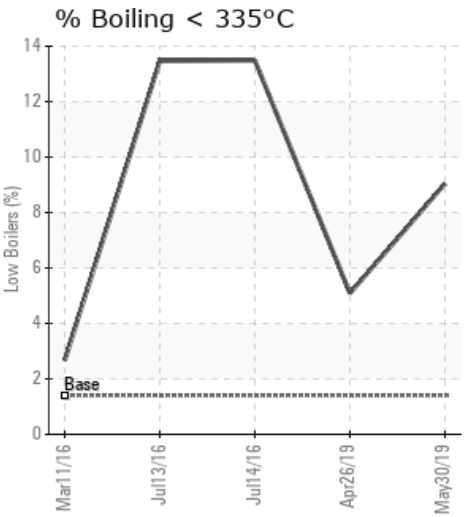


Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
05/30/19	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
04/26/19	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07/14/16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1	2
07/13/16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03/11/16	18	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 anaysis results (above) in parts per million (ppm). [10,000 ppm = 1.0%]







Historical Comments

04/26/19	Need to verify the system temperature is 587 F the Chevron HTF 46 is rated for 550 F maximum bulk oil temperature. The system is showing signs of thermal degradation. The viscosity is at 27 cSt @ 40 C and new oil should be 41 that is a viscosity reductions of 34% and the flash point is very low at 124 C new oil should be 210 C. We would recommend venting the system and sweetning with new oil. COC Flash Point is severely low.
07/14/16	The fluid flash point and viscosity are very low. The fluid viscosity is half of what it should be. If the condensed vapors collected during venting are not used again and sent back into the system, this means this fluid has undergone severe thermal cracking. For a system that size a sweetening combined with active venting of the low boilers (which make up 13% of the sample by weight) out via the expansion tank would help. (GCD) 10% Distillation Point is severely low. Visc @ 40°C is severely low. (GCD) % < 335°C is abnormally high. COC Flash Point is abnormally low.
07/13/16	The fluid flash point and viscosity are very low. The fluid viscosity is half of what it should be. If the condensed vapors collected during venting are not used again and sent back into the system, this means this fluid has undergone severe thermal cracking. For a system that size a sweetening combined with active venting of the low boilers (which make up 13% of the sample by weight) out via the expansion tank would help. (GCD) 10% Distillation Point is severely low. COC Flash Point is severely low. Visc @ 40°C is severely low. (GCD) % < 335°C is abnormally high.
03/11/16	The fluid contains a fair amount of low boilers, which contribute to the reduced viscosity (about 50% down from fresh oil) and lower flash point (also about 50% of fresh oil). Although 2.67% low boilers doesn't sound alarming, multiplied by 38,000 gallons that means ~1000 gallons of low flash point hydrocarbons in the fluid. We suggest to perform venting to remove those low boilers and replace the loss by adding fresh oil. (GCD) 10% Distillation Point is severely high. COC Flash Point is severely low. Visc @ 40°C is severely low. (GCD) 90% Distillation Point is abnormally high.