

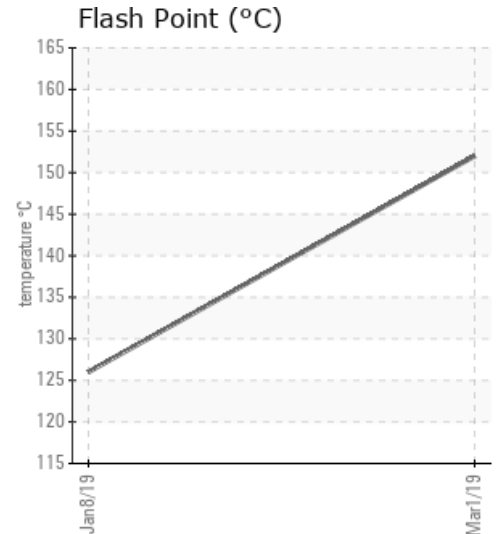
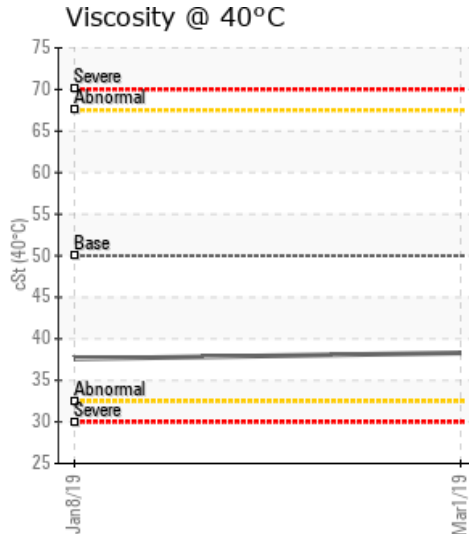
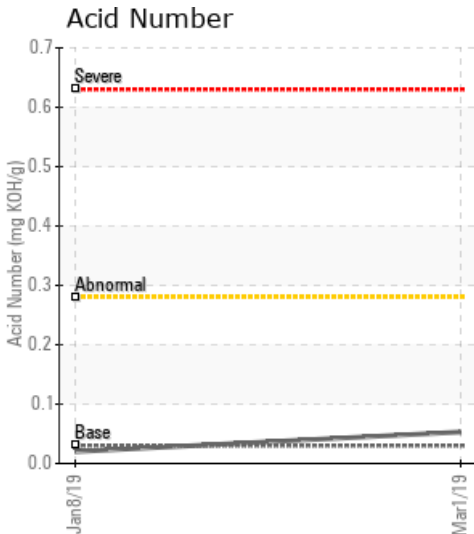
[/ 6-25-45-10W5M /] H704 HOT OIL HEATER

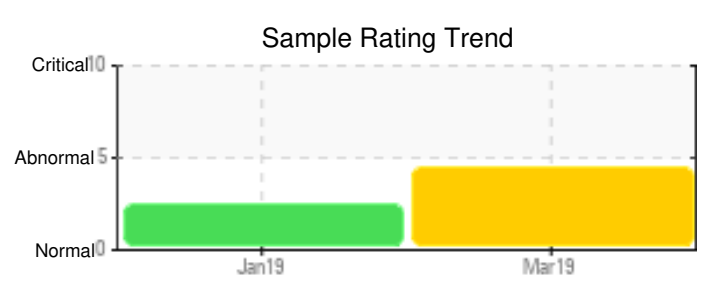
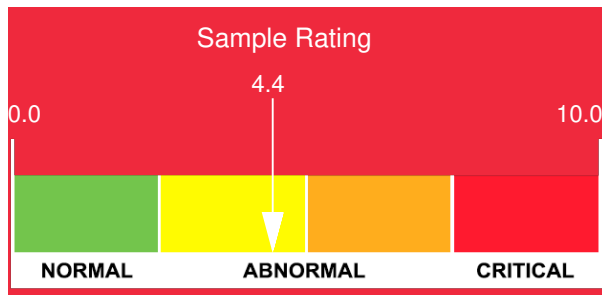
Customer: PTRHTF20136	System Information	Sample Information
CENOVUS ENERGY 13-35-47-10W5 DRAYTON VALLEY, AB Canada Attn: Kevin Spiker Tel: (780)514-4635 E-Mail: kevin.spiker@cenovus.com	System Volume: 0 ltr Bulk Operating Temp: Not Specified Heating Source: Blanket: Fluid: SUNOCO SUN HEAT TRANSFER 21 PD Make:	Lab No: 02271871 Analyst: Terry Veenstra Sample Date: 03/01/19 Received Date: 03/07/19 Completed: 03/08/19

Recommendation: Cleveland open cup Flashpoint amd GCD 10% are very low and GCD 335°C is slightly high. Venting of heat transfer system to eliminate light ends is part of good fluid maintenance. Vent system and resample in 6 months.

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

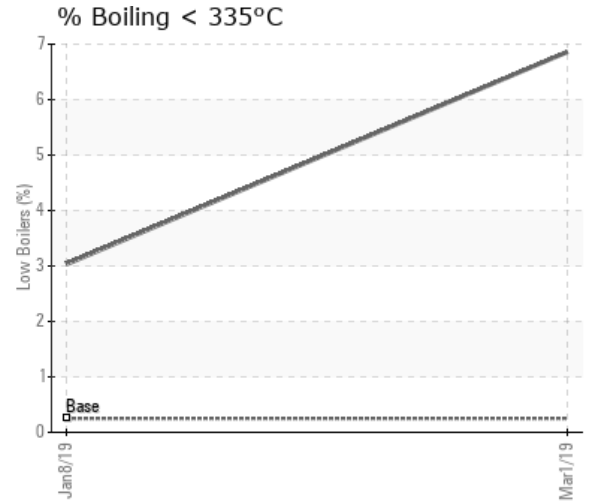
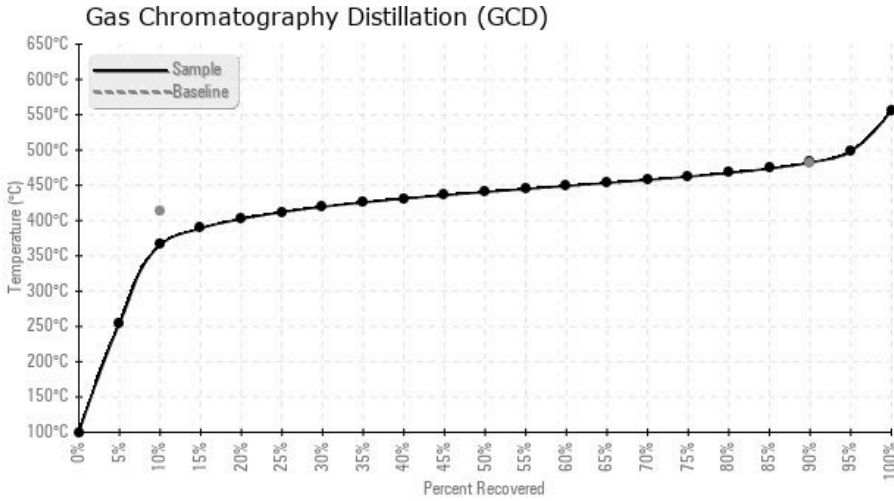
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
03/01/19	03/07/19	22y	SUPPLY	306 / 152	31.3	38.3	0.053	0.080	690 / 366	825 / 441	900 / 482	6.86
01/08/19	01/23/19	21y		259 / 126	37.2	37.6	0.02	0.020	719 / 381	820 / 438	891 / 477	3.03
Baseline Data				439 / 226		50.0	0.03		777 / 414		900 / 482	0.25





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
03/01/19	2	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	4	0
01/08/19	2	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	
01/08/19	Fluid looks good except for the COC Flash Point is low. Regular venting of low boiling vapors from the expansion tank is recommended. Please ensure blanket gas is operational. Please re-sample in 6 months COC Flash Point is severely low. (GCD) 10% Distillation Point is marginally low.

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