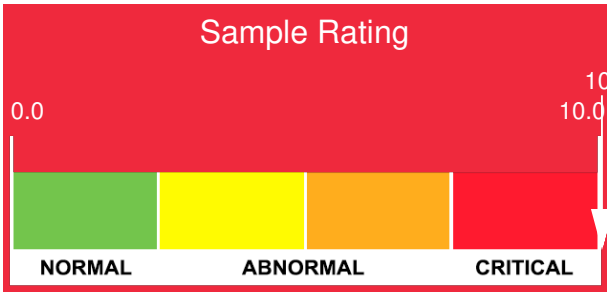
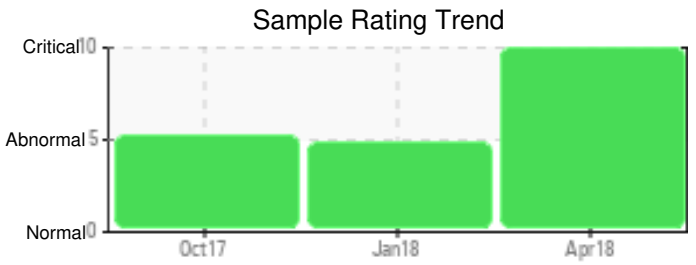




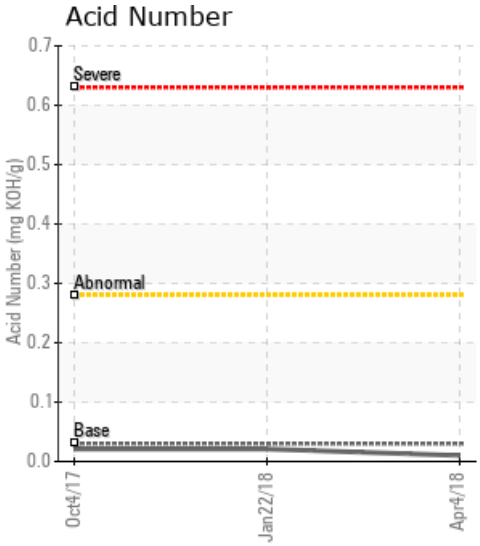
[SIMONETTE GAS PLANT / LSD: 9-6-63-25-W5] REFRIDGE SIMONETTE PLANT

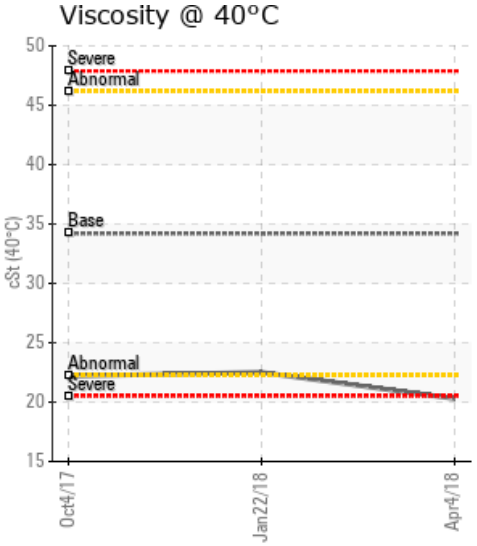
Customer: PTRHTF20187	System Information	Sample Information
KEYERA ENERGY- SIMONETTE GAS PLANT PO BOX 58 VALLEYVIEW, AB T0H 3N0 Canada Attn: Iain Hamilton Tel: (403)651-2408 E-Mail: Iain_Hamilton@keyera.com	System Volume: 18000 ltr Bulk Operating Temp: 446F / 230C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: PETROTECH	Lab No: 02210084 Analyst: Peter Harteveld Sample Date: 04/04/18 Received Date: 04/16/18 Completed: 04/18/18 To discuss this report contact Peter Harteveld at (780)967-4234

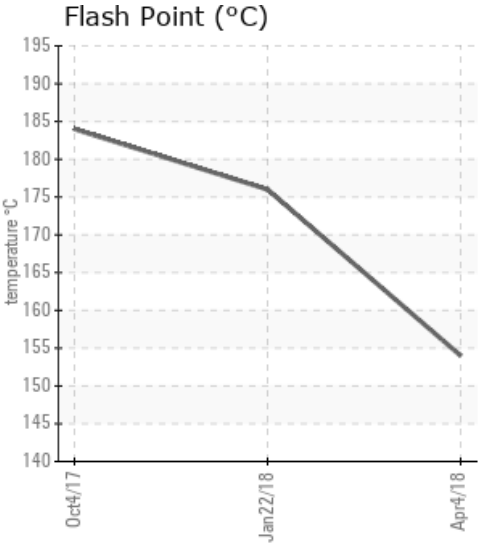
Recommendation: The sample shows very low viscosity and low Flash Point. % boil-off below 335C. is high. The distillation curve as a whole is not representative for Petro-Therm. It is believed that this condition is the result of mixing with a different, low viscosity fluid (Therminol 59) mainly. Thermal degradation may have an additional effect on the condition of the fluid. Please vent-off low boiler vapors to atmosphere and resample in 3 months.

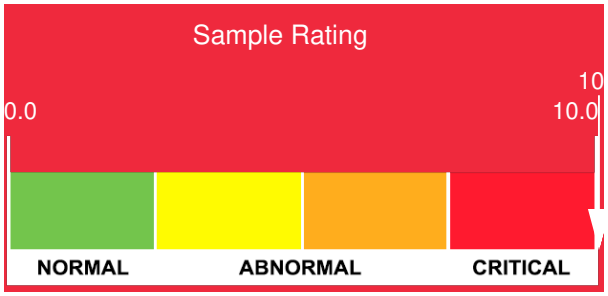
Comments: (GCD) % < 335°C is severely high. (GCD) 10% Distillation Point is severely low. (GCD) 90% Distillation Point is severely low. COC Flash Point is severely low. Visc @ 40°C is severely low. (GCD) 50% Distillation Point is abnormally low.

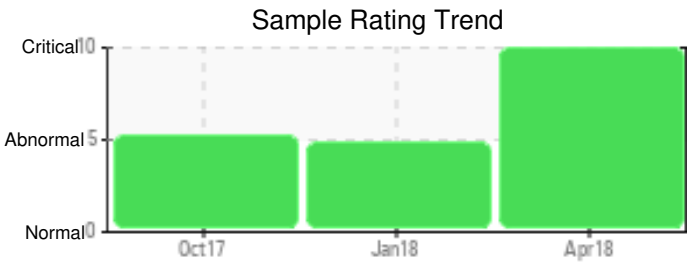
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
04/04/18	04/16/18	7m		309 / 154	10.3	20.3	0.01	0.015	531 / 277	735 / 391	857 / 458	32.25
01/22/18	01/29/18	5m		349 / 176	2.6	22.5	0.021	0.037	559 / 293	801 / 427	916 / 491	15.32
10/04/17	10/17/17	42m		363 / 184	19.0	22.2	0.021	0.038	556 / 291	798 / 426	911 / 489	15.96
Baseline Data				433 / 223		34.2	0.03		720 / 382	817 / 436	900 / 482	1.00





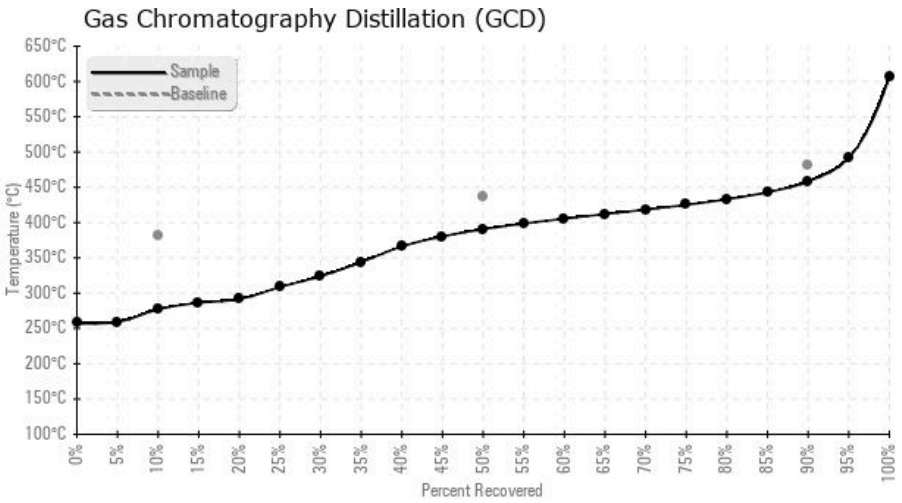


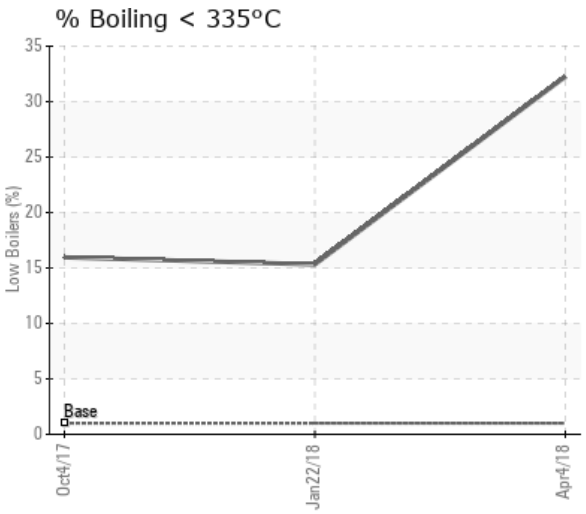




Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
04/04/18	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01/22/18	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/04/17	1	0	0	0	0	0	1	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

01/22/18	The condition of the fluid has remained the same. Viscosity, Flash Point and 10% GCD temp are low and the low boiler vapor (% <335C) content is too high. This is possibly the result of mixing with a lighter fluid. The fluid is suitable for use but it would be good to top-up with Petro-Therm (10% of total volume) to bring the Flash Point up to a more acceptable level and lower the low boiler vapor content because 15% is a problem for the pumps (cavitation) and could results in loss of flow due to vapor lock. Please re-sample in 6 months. (GCD) 10% Distillation Point is severely low. (GCD) % < 335°C is abnormally high. COC Flash Point is abnormally low.
10/04/17	A combination of low viscosity, Flash Point and 10% GCD temperature plus a very high low boiler vapor content (% boil-off <335C.) would normally indicate thermal degradation but since fluid service life has only been 42 days this condition could be the result of one of the following:1. Mixing with another (low viscosity) heat transfer fluid.2. Contamination with a process fluid.3. Ingress of blanket gas when blanket gas pressure is too high and natural gas is in use.Please identify the problem and rectify. (GCD) 10% Distillation Point is severely low. (GCD) % < 335°C is abnormally high. Visc @ 40°C is abnormally low. COC Flash Point is marginally low.