

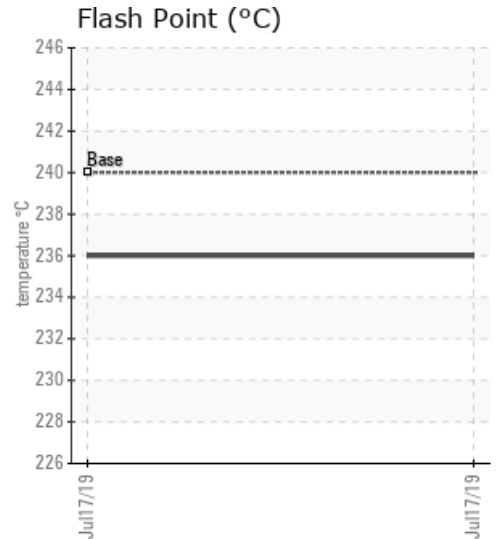
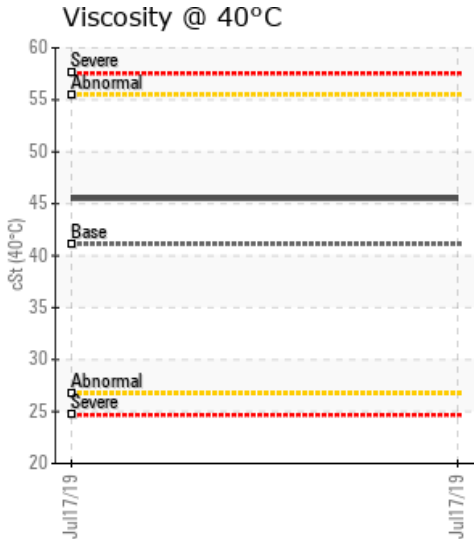
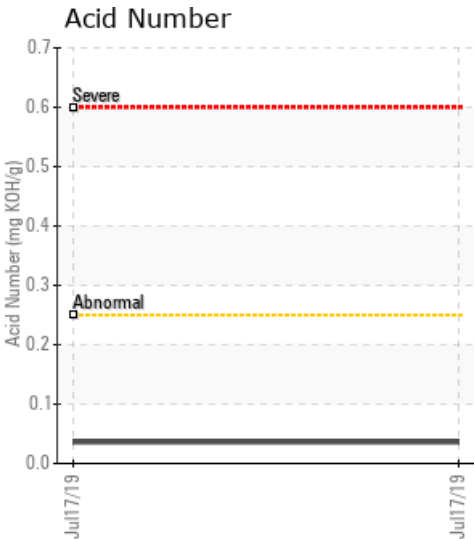
THERMAL FLUID BOILER

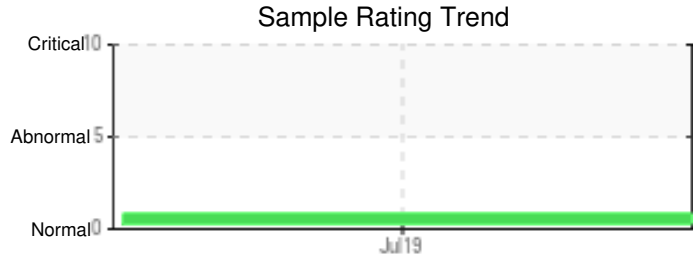
Customer: PTRHTF20225	System Information	Sample Information
TAMARACK VALLEY ENERGY RR #1 BLUFFTON, AB T0C 0M0 Canada Attn: Ben Mahe Tel: (780)232-8861 E-Mail: ben.mahe@tamarackvalley.ca	System Volume: 1000 ltr Bulk Operating Temp: Not Specified Heating Source: Blanket: Fluid: CHEVRON HEAT TRANSFER OIL 46 Make:	Lab No: 02315201 Analyst: Terry Veenstra Sample Date: 07/17/19 Received Date: 10/18/19 Completed: 10/30/19 Terry Veenstra terry.veenstra@petrocanadalsp.com

Recommendation: Distillation is marginally low. Resample in 6 months

Comments: (GCD) 90% Distillation Point is abnormally low.

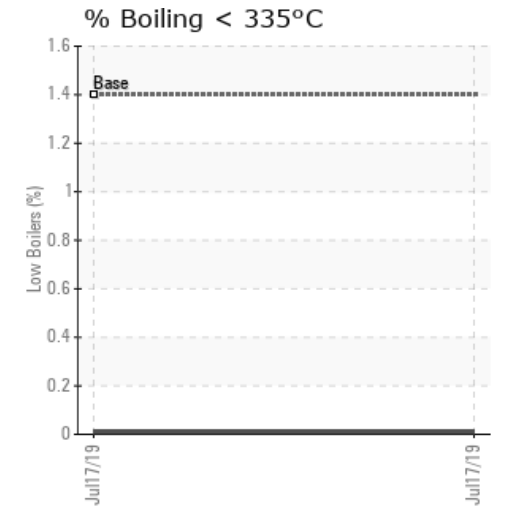
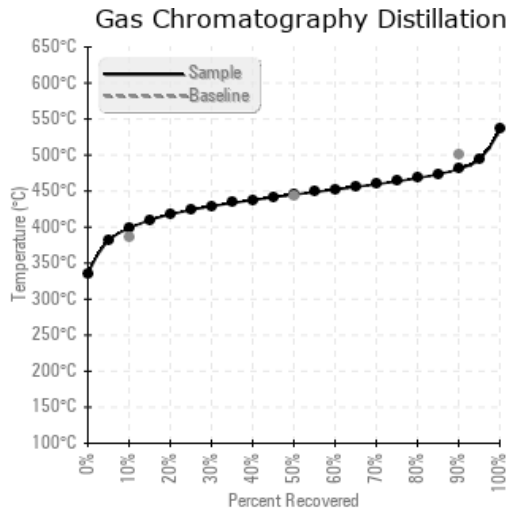
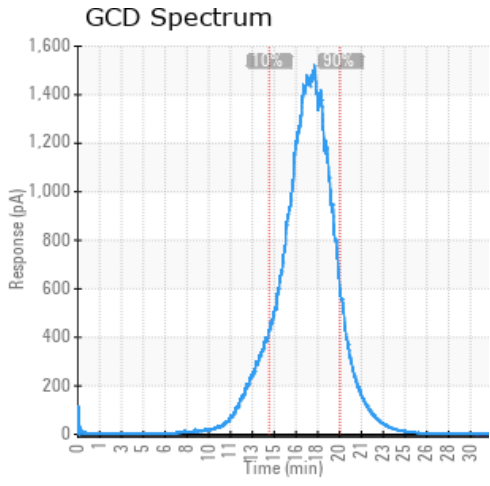
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
07/17/19	10/18/19	0h		457 / 236	0.00	45.5	0.036	0.114	749 / 398	833 / 445	897 / 481	0.01
Baseline Data				464 / 240		41.1			727 / 386	828 / 442	932 / 500	1.4





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
07/17/19	0	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

Petro-Canada makes no representation or warranty of any kind, either express or implied, as to the accuracy or completeness of the analysis and assumes no responsibility and shall have no liability whatsoever with respect to such analysis, or a party's use of it. Petro-Canada is a division of HollyFrontier Corporation.