

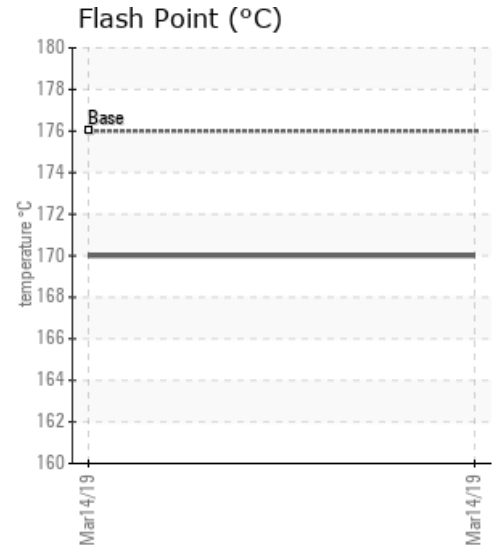
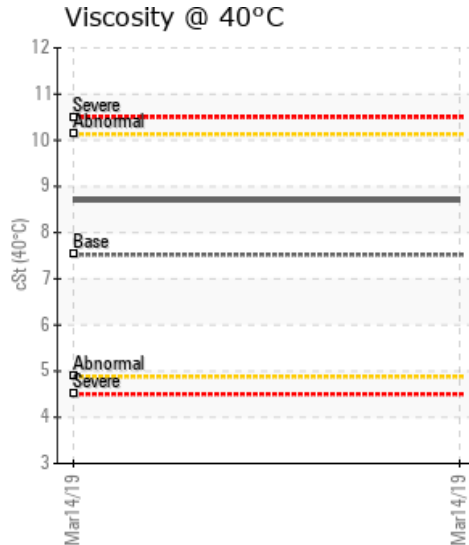
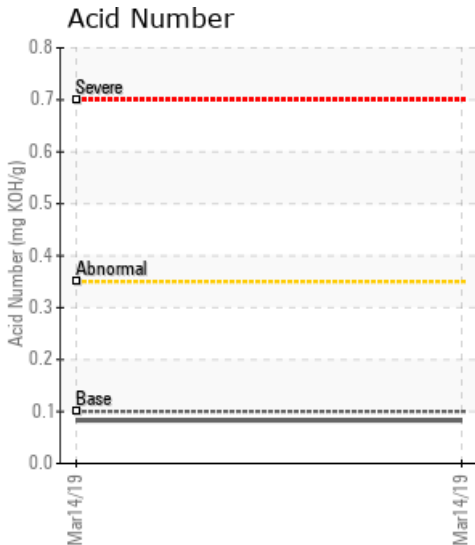
## HEAT MEDIUM SYSTEM

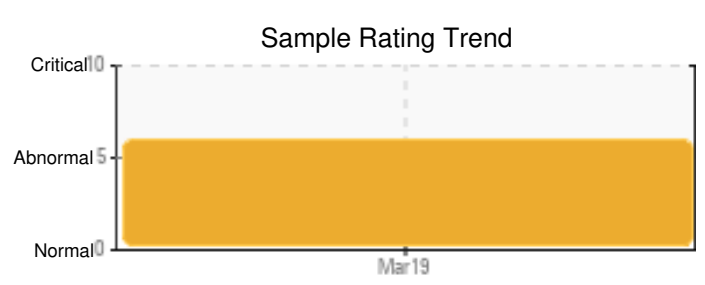
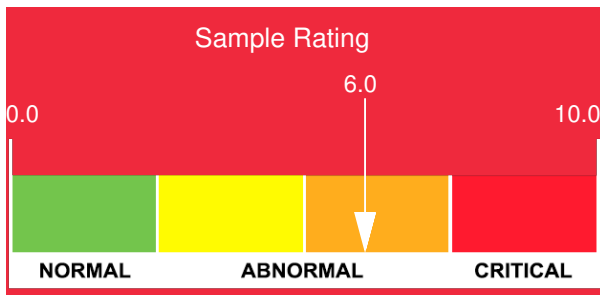
Customer: PTRHTF20078	System Information	Sample Information
TRANSCANADA MACKAY RIVER COGEN SITE FORT MCMURRAY, AB CANADA Attn: Ross Phillips Tel: (780)713-1543 E-Mail: ross_phillips@transcanada.com	System Volume: 17000 ltr Bulk Operating Temp: 392F / 200C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO LT Make: DELTAK	Lab No: 02275859 Analyst: Benjamin Latorre Sample Date: 03/14/19 Received Date: 03/28/19 Completed: 04/16/19

Recommendation: Resample at next interval to monitor changes in GCD test results.

Comments: Wear metals Low/Normal. Low contamination levels. (GCD) % < 335°C is high. (GCD) 90% Distillation Point is high.

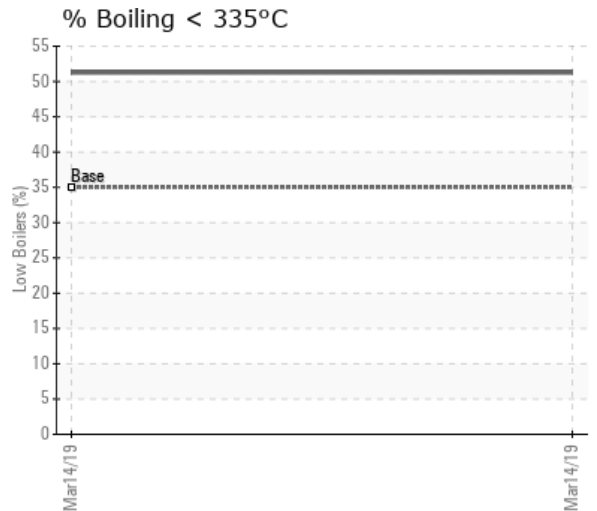
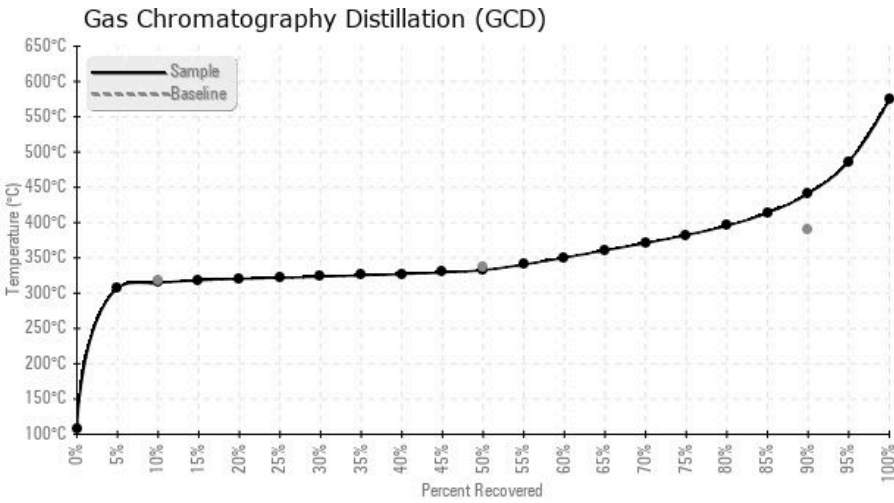
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
03/14/19	03/28/19	16y	BYPASS FILTER SUPPLY	338 / 170	0.9	8.7	0.083	0.019	598 / 315	631 / 333	826 / 441	51.27
Baseline Data				349 / 176		7.52	0.1		604 / 318	640 / 338	734 / 390	35.0





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
03/14/19	4	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	50	0
<b>Baseline Data</b>			0	0						0			0	0					0				270	

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



### Historical Comments


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