

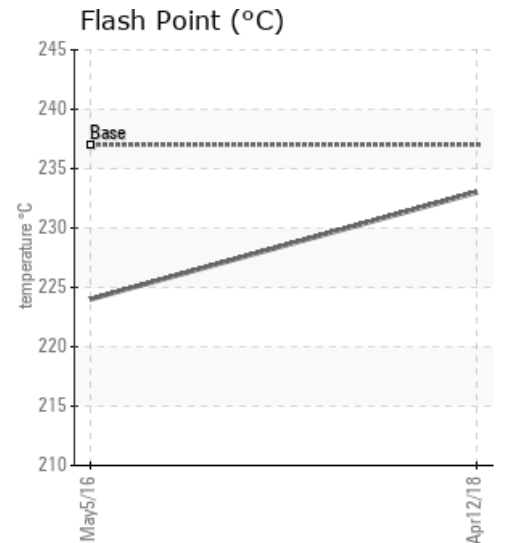
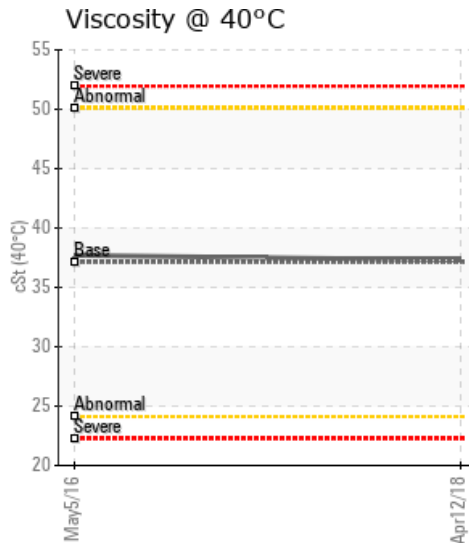
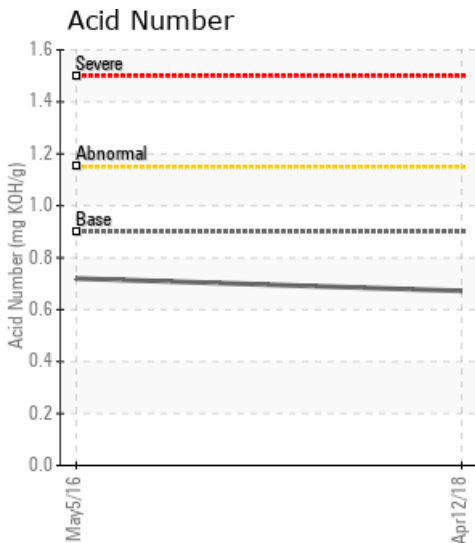
TPC B4 MILL

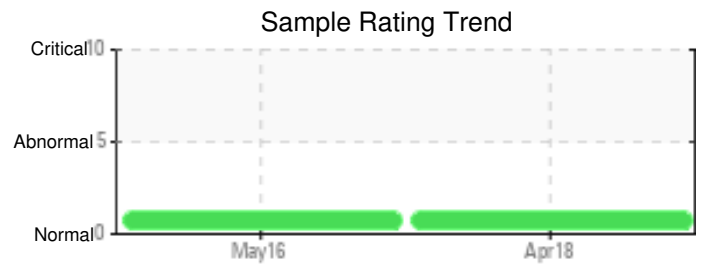
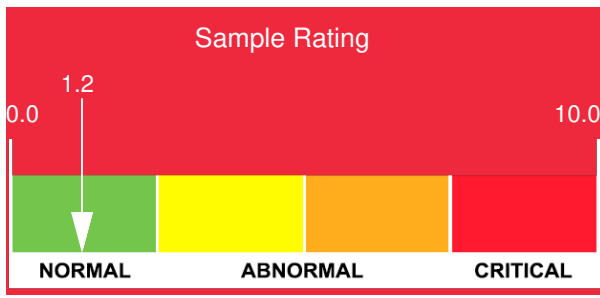
Customer: PTRHTF10175	System Information	Sample Information
Thatcher Company 1905 Fortune Road Salt Lake City, UT 84104 USA Attn: Carolyn Chen Tel: (801)924-1424 E-Mail: carolyn.chen@tchem.com	System Volume: 160 gal Bulk Operating Temp: 205F / 96C Heating Source: Blanket: Fluid: PETRO CANADA PURITY FG HEAT TRANSFER FLUID Make: TIM LAWTON	Lab No: 02213020 Analyst: Ron LeBlanc Sample Date: 04/12/18 Received Date: 04/30/18 Completed: 05/02/18 To discuss this report contact Ron LeBlanc at (541)678-7044

Recommendation: It appears an oil was added containing zinc. Acid Number increased from previous sample. This could be due to the unknown origin of zinc. Resample in 3 months.

Comments: Zinc ppm levels are severely high.

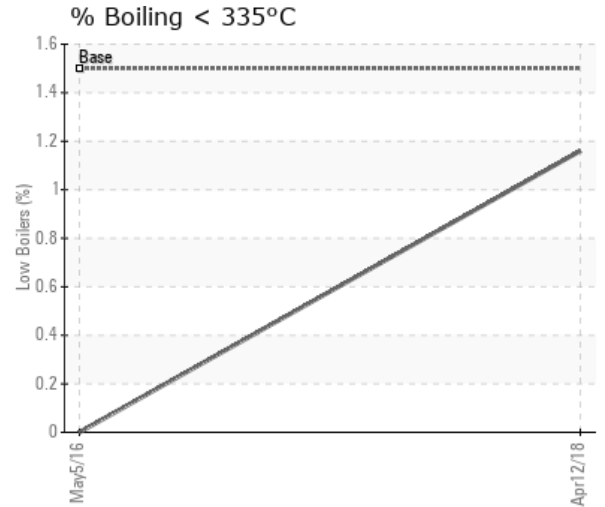
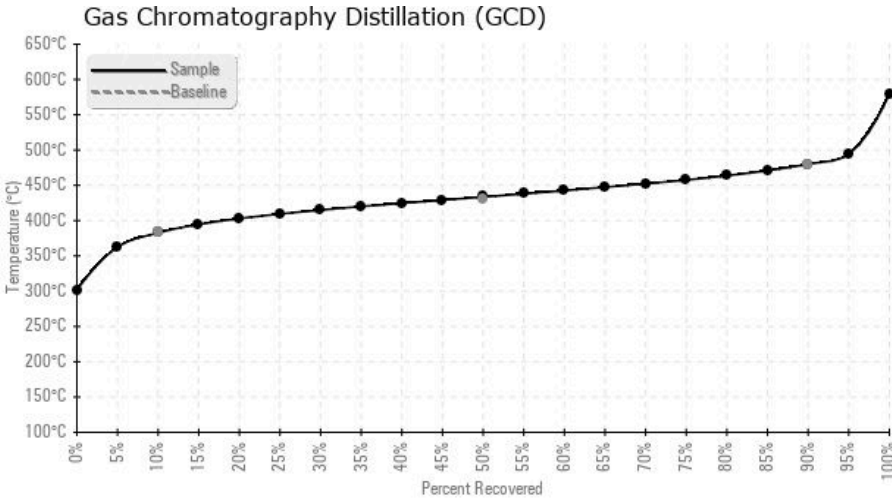
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
04/12/18	04/30/18	16m		451 / 233	104.5	37.3	0.672	0.052	721 / 383	812 / 434	896 / 480	1.16
05/05/16	05/19/16	4m	AFTER HEAT EXCHANGER	435 / 224	122.9	37.7	0.72	0.056	727 / 386	805 / 430	887 / 475	0.00
Baseline Data				459 / 237		37.12	0.90		721 / 383	807 / 431	892 / 478	1.5





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
04/12/18	22	0	0	0	5	0	0	5	0	0	4	1	0	0	0	0	4	0	1	1	5	0	230	586
05/05/16	9	0	0	0	11	1	0	3	0	0	3	0	0	0	0	0	3	0	0	0	3	0	229	503
Baseline Data			0	0						0		0	0						0				230	

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



Historical Comments

05/05/16	Determine cause of high zinc level. Otherwise sample suitable for continued service. Zinc ppm levels are severely high.

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