

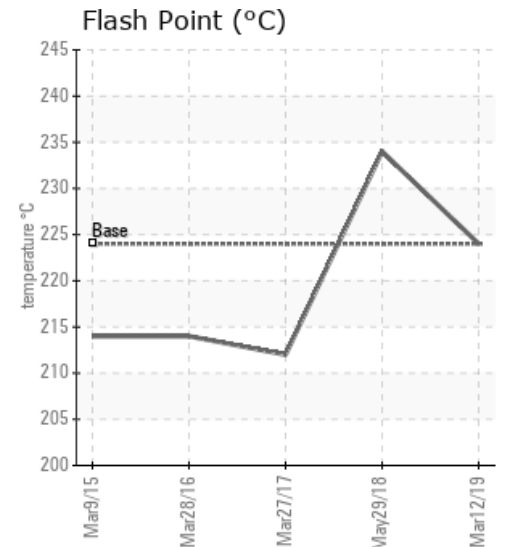
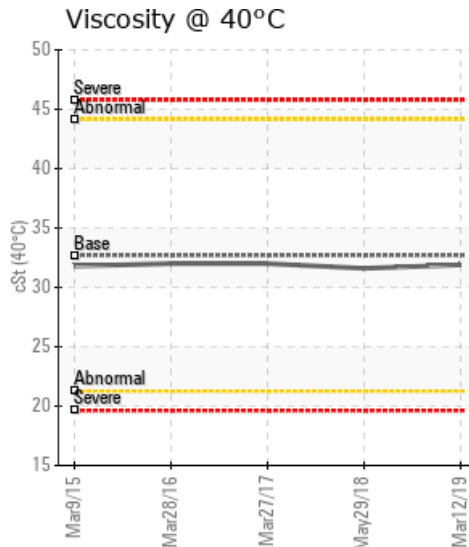
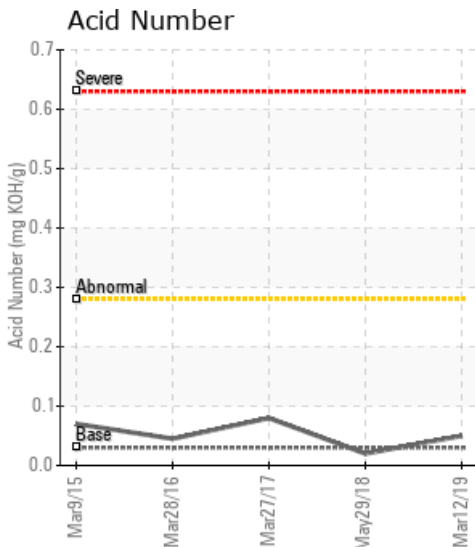
VOLCANIC BOTTOM

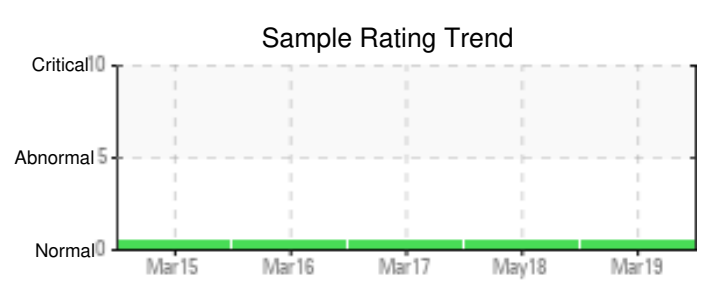
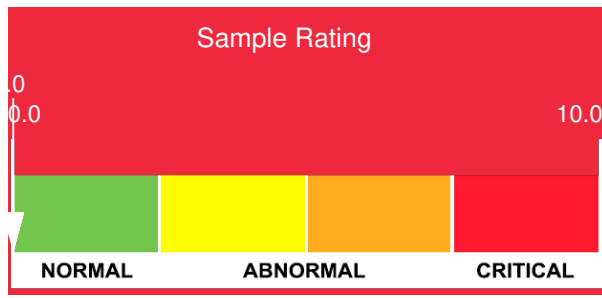
Customer: PTRHTF10039	System Information	Sample Information
Piedmont Chemical Industries 331 BURTON AVE. HIGH POINT, NC 27261 USA Attn: GEORGE WETTE Tel: (336)885-5131 E-Mail:	System Volume: 1000 gal Bulk Operating Temp: 536F / 280C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO AF Make: VOLCANIC	Lab No: 02274292 Analyst: Manny Garcia Sample Date: 03/12/19 Received Date: 03/20/19 Completed: 03/26/19

Recommendation: Fluid is suitable for continued use. Please re-sample in March 2020.

Comments: Wear metals are low. Viscosity is perfect at 31.9 Cst @ 40oC. Excellent looking fluid sample

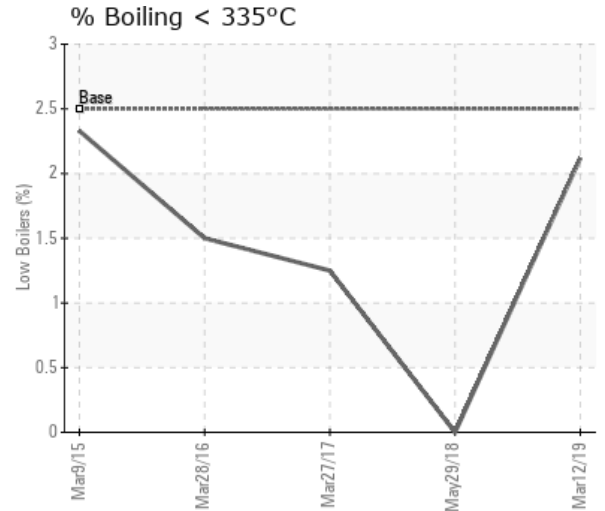
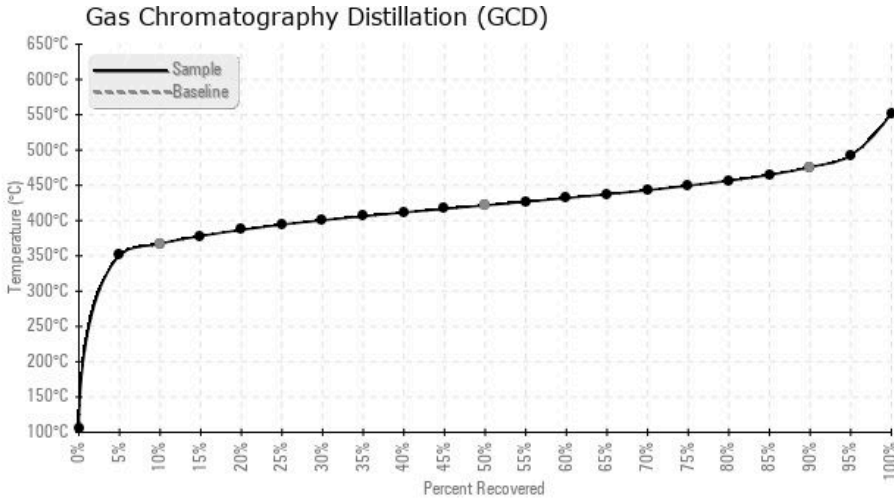
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
03/12/19	03/20/19	22y		435 / 224	9.2	31.9	0.05	0.321	693 / 367	791 / 422	888 / 476	2.12
05/29/18	06/05/18	21y	BOTTOM OF RESERVOIR	453 / 234	0.00	31.6	0.02	0.261	712 / 378	788 / 420	879 / 471	0.00
03/27/17	03/30/17	19y	BOTTOM RESERVOIR	414 / 212	7.0	32.0	0.08	0.217	699 / 370	797 / 425	897 / 481	1.25
03/28/16	04/01/16	18y	BOTTOM OF RESERVOIR	417 / 214	0.00	32.0	0.045	0.303	697 / 369	800 / 426	901 / 483	1.50
03/09/15	03/16/15	18y	BOTTOM OF RESERVOIR	417 / 214	10.8	31.8	0.07	0.163	699 / 371	807 / 431	902 / 484	2.33
Baseline Data				435 / 224		32.7	0.03		693 / 367	790 / 421	887 / 475	2.5





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		
03/12/19	43	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	169	0	
05/29/18	34	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	159	0
03/27/17	61	0	0	0	0	0	0	0	0	0	7	1	0	0	0	0	0	0	0	0	0	0	0	0	181	0
03/28/16	41	0	0	0	0	0	0	0	0	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	152	0
03/09/15	53	0	0	0	0	0	0	0	0	0	6	2	0	0	0	0	0	0	0	0	0	0	0	0	152	0
Baseline Data			0	0						0			0	0					0						270	

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



Historical Comments	
05/29/18	Filtering the system filters or filtering the oil with a kidney loop filtration system can mitigate this issue. Fluid is suitable for continued use. Please re-submit annual sample in May 2019. Very light silt noticed by the chemist.
03/27/17	Heat Transfer system and fluid look very good. Please re-submit annual sample in March 2018. Wear metals are satisfactory; contaminant is low; water is low; viscosity is good; COC flash point is good; pentane insoluble are good; very light debris was visible in sample
03/28/16	This 1000 gallon system is in very good condition and suitable for continued use after 18 years of service. Please re-submit sample during next scheduled interval. Wear metals low; Contaminant levels low; Additive levels good; Water is low; Flash Point is good; Acid Number is good; Viscosity is good; Distillation Curves are good; Pentane Solids low; Very light silt noticed visually
03/09/15	Wear metals are low; Contaminant level is low; Water is normal; Total Acid Number is low; Viscosity grade is normal; Flash Point is Normal; Distillation numbers are Normal; Pentane solids are low; Please sample system and submit oil analysis during next scheduled interval.

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