

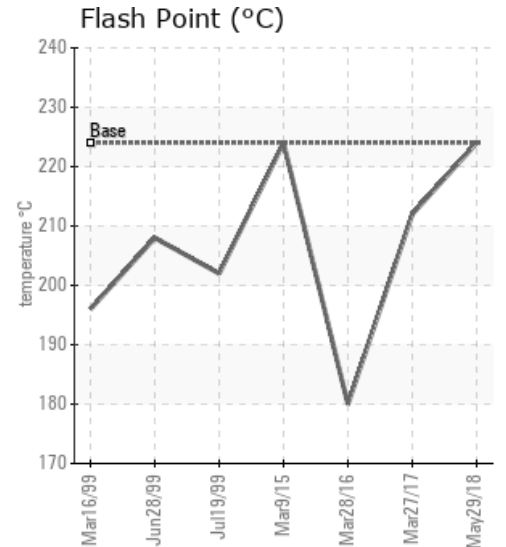
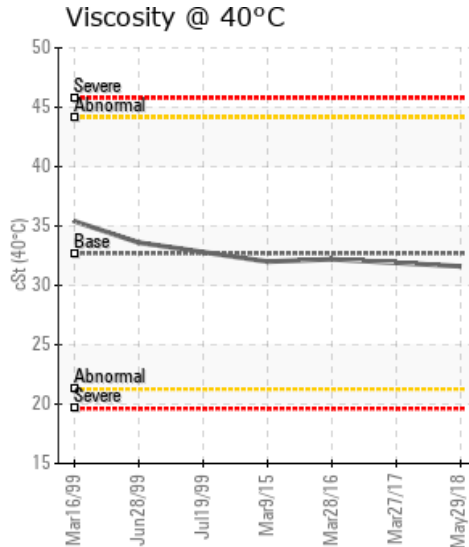
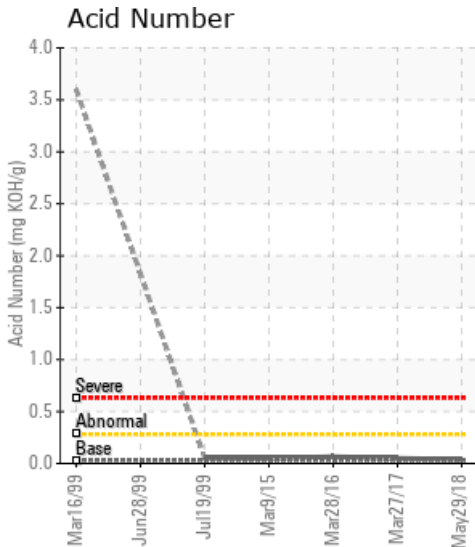
## TOP OF RESIVOIR VOLCANIC HOT OIL HEATER

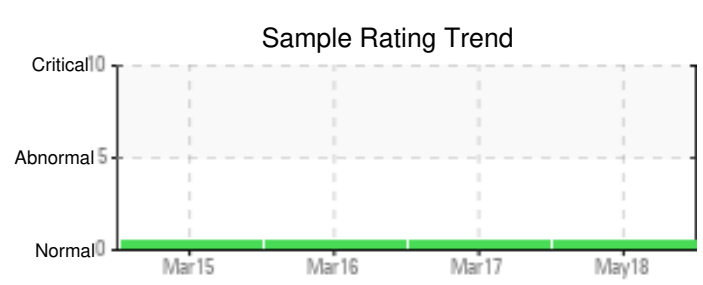
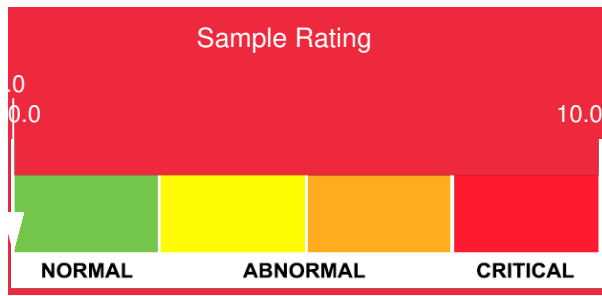
Customer: PTRHTF10039	System Information	Sample Information
Piedmont Chemical Industries 331 BURTON AVE. HIGH POINT, NC 27261 USA Attn: GEORGE WETTE Tel: (336)885-5131 E-Mail:	System Volume: 1000 gal Bulk Operating Temp: 536F / 280C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO AF Make: VOLCANIC	Lab No: 02220415 Analyst: Manny Garcia Sample Date: 05/29/18 Received Date: 06/05/18 Completed: 06/08/18 To discuss this report contact Manny Garcia at 954-384-7259

Recommendation: Oil is suitable for continued use, please submit the next sample in May 2019.

Comments: Very light silt and very light debris noticed by the chemist. Changing any system filters or using a kidney loop filtration system to polish the oil contamination is recommended.

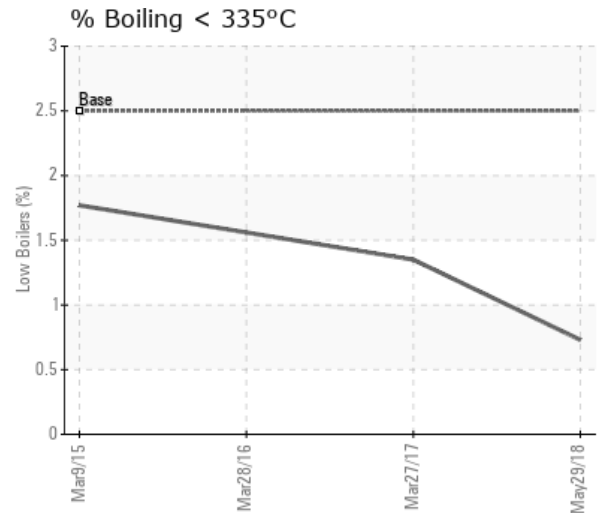
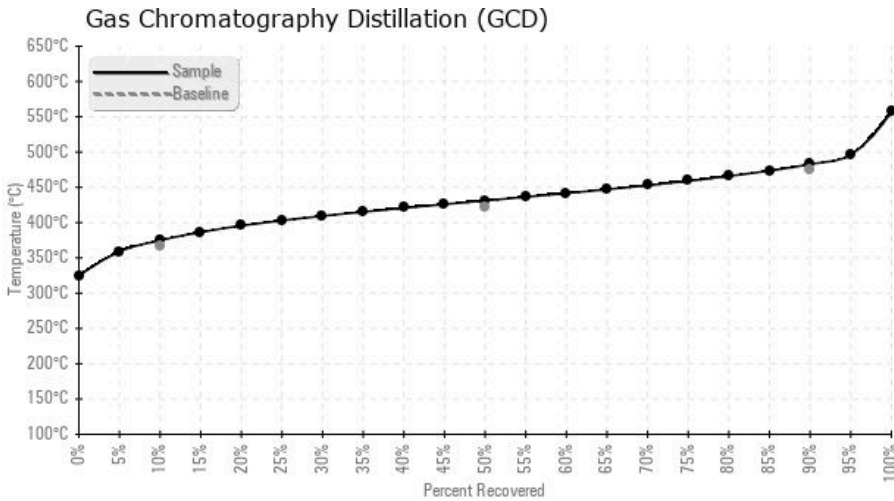
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
05/29/18	06/05/18	21y		435 / 224	10.8	31.6	0.039	0.202	707 / 375	808 / 431	901 / 483	0.73
03/27/17	03/30/17	19y	TOP OF RESERVOIR	414 / 212	6.9	31.9	0.05	0.105	697 / 369	795 / 424	892 / 478	1.35
03/28/16	04/01/16	18y	TOP OF RESERVOIR	356 / 180	1.9	32.2	0.065	0.124	696 / 369	798 / 426	900 / 482	1.56
03/09/15	03/16/15	18y	TOP OF RESERVIOR	435 / 224	3.8	32.0	0.05	0.261	694 / 368	792 / 422	886 / 475	1.77
07/19/99	07/23/99	0y	CB990722-02	396 / 202		32.8	0.053	0.497				
06/28/99	07/15/99	0y	TS990714-08	406 / 208		33.6						
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
05/29/18	30	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	150	0
03/27/17	22	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	134	0
03/28/16	34	0	0	0	0	0	0	0	0	0	4	1	0	0	0	0	0	0	0	0	0	0	145	0
03/09/15	36	0	0	0	0	0	0	1	0	0	5	2	0	0	0	0	0	0	1	0	1	0	158	0
07/19/99	6	0	0	1	0	6	0	0	0		3	4	0	0	2				0	0	0	0	124	1
06/28/99	19	0	0	2	0	5	0	0	0		6	0	2	0	3				0	0	0	0	127	1
<b>Baseline Data</b>			<b>0</b>	<b>0</b>						<b>0</b>			<b>0</b>	<b>0</b>					<b>0</b>				<b>270</b>	

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



Historical Comments	
03/27/17	Please submit annual sample in March of 2018. System and fluid look very good. Wear metals are low; Contaminant levels are low; Water is low; Viscosity is good; Acid number is low; COC Flash Point is low; Pentane Insolubles are low; Very light white metal was noticed
03/28/16	1000 Gallon system of Calflo AF with 18 years of service is Normal condition. Please re-sample at next normal sample interval. Wear metals low; Contaminant levels low; Additive levels good; Water is low; Acid levels are low; Viscosity levels are perfect; Flash Point is good; Distillation curves are in check; Pentane solids low
03/09/15	Wear metals are low; Contaminant level is low; Water is nil; 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.
07/19/99	This is a baseline read-out on the submitted sample.
06/28/99	This is a baseline read-out on the submitted sample. Insufficient sample was received to conduct all the routine laboratory tests.

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.