

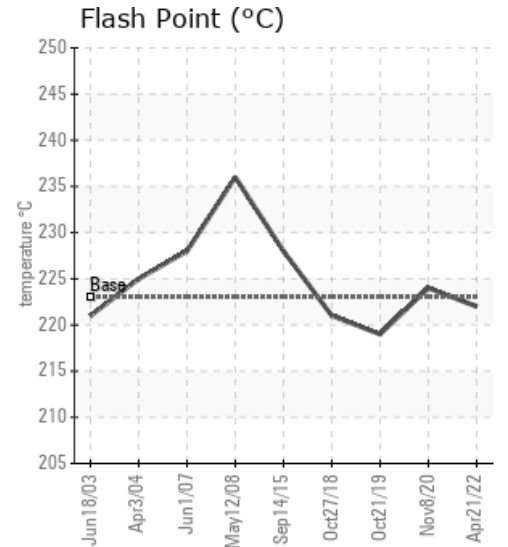
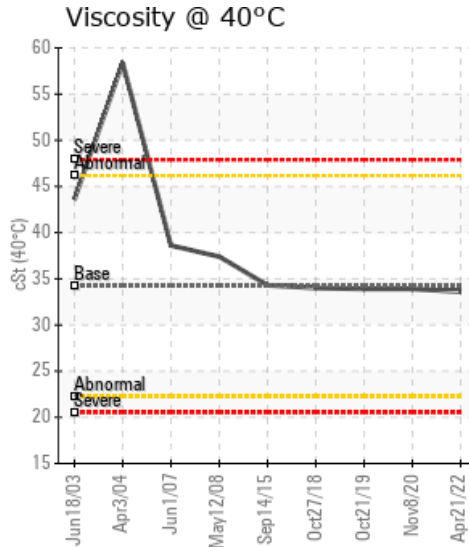
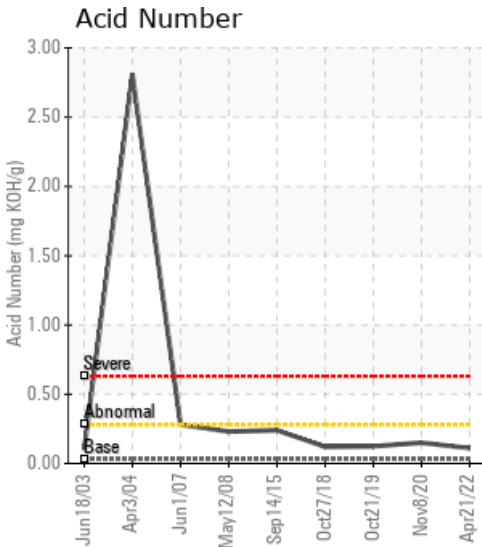
RADIUM FURNACE 1

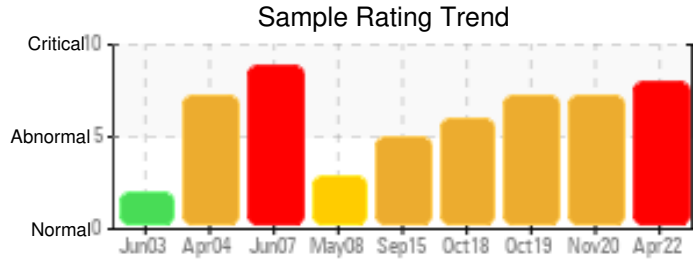
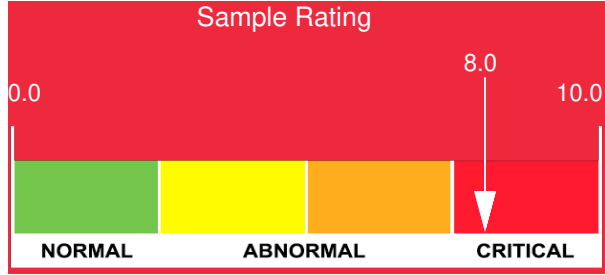
Customer: PTRHTF20164	System Information	Sample Information
Canfor - Radium Hot Springs 4685 FORSTERS LANDING RD Radium Hot Springs, BC V0A 1M0 Canada Attn: Mike Gaudette Tel: E-Mail: mike.gaudette@canfor.com	System Volume: 90000 ltr Bulk Operating Temp: 500F / 260C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: DEL-TECH	Lab No: 02486556 Analyst: Paul Hetherington Sample Date: 04/21/22 Received Date: 05/03/22 Completed: 05/05/22 Paul Hetherington paul.hetherington@hollyfrontier.com

Recommendation: The fluid is in good condition overall with no significant changes from the last sample ~18 months ago. The contamination of Sodium and Calcium may have originated from a cleaning fluid at system start up but does not appear to be affecting the fluids performance. GCD@90C has not really changed during the last year and half. Based on the trend recommend resampling again in one year.

Comments: Sodium ppm levels are severely high. Calcium ppm levels are severely high. (GCD) 90% Distillation Point is abnormally high.

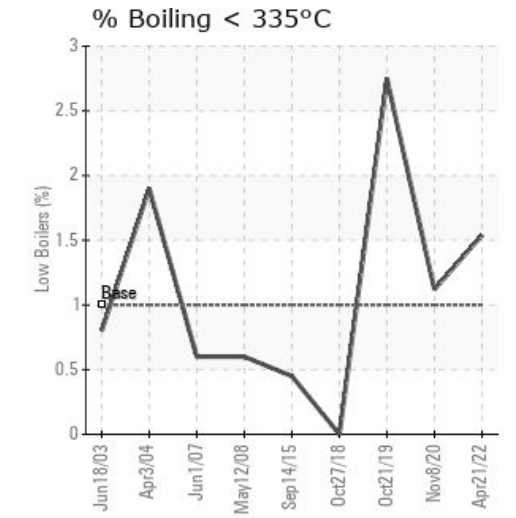
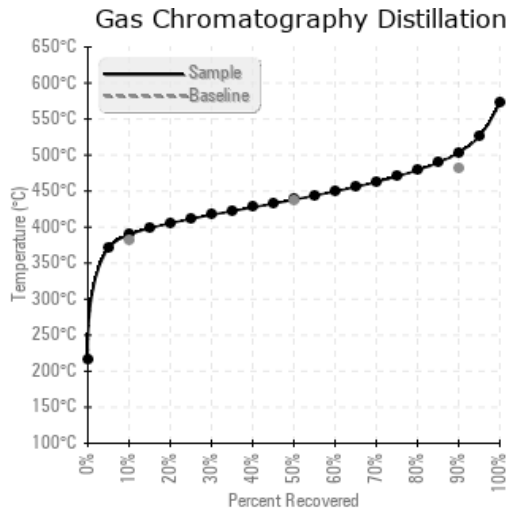
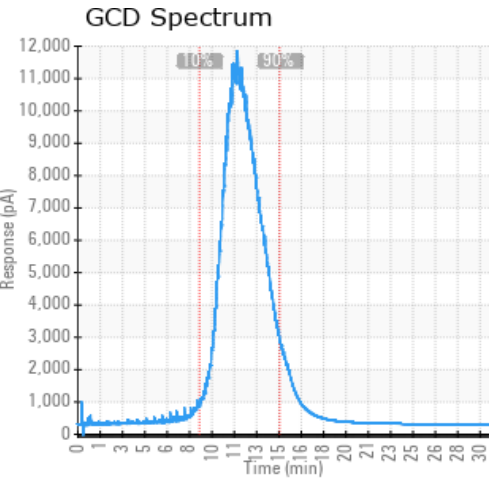
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
04/21/22	05/03/22	9.8y	TEST SAMPLE PORT	432 / 222	132.0	33.6	0.11	0.039	733 / 389	820 / 438	938 / 503	1.54
11/08/20	11/16/20	8.0y	TEST PORT	435 / 224	106.9	33.9	0.15	0.104	735 / 390	820 / 438	935 / 502	1.12
10/21/19	11/01/19	7.0y		426 / 219	177.7	33.9	0.124	0.111	699 / 371	789 / 421	907 / 486	2.75
10/27/18	11/13/18	6.0y		430 / 221	105.3	34.0	0.12	0.108	735 / 390	827 / 441	954 / 512	0.00
09/14/15	09/24/15	14.0y		442 / 228	263.1	34.3	0.24	0.088	737 / 392	827 / 442	947 / 508	0.45
Baseline Data				433 / 223		34.2	0.03		720 / 382	817 / 436	900 / 482	1.00





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
04/21/22	2	0	0	0	0	0	0	0	0	0	0	186	1	0	0	0	0	0	1	0	157	0	12	0
11/08/20	2	0	0	0	0	0	0	0	0	0	0	187	1	0	0	0	0	0	0	0	163	0	12	1
10/21/19	2	0	0	0	0	0	0	0	0	0	0	220	2	0	0	0	0	0	0	1	218	0	12	2
10/27/18	3	0	0	0	0	0	0	0	0	0	0	221	0	0	0	0	0	0	1	2	330	0	14	3
09/14/15	9	0	0	0	0	0	0	0	0	0	0	250	0	0	0	0	0	0	2	2	405	0	16	13
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	
11/08/20	The fluid is in good condition overall, no significant changes from last sample. The GCD@90C show some possible signs of oxidation and thermal degradation, but not a concern at this time. The contamination of Sodium and Calcium may have originated from cleaning fluid at system startup, but should not affect the performance of the fluid. Recommend sampling system again in approximately 6 months to monitor. Sodium and Calcium levels are severely high. (GCD) 90% Distillation Point is abnormally high.
10/21/19	The fluid is in good condition overall. The Sodium (Na) and Calcium (Ca) may have originated from contamination at system startup, but should not affect the performance of the fluid. Recommend sampling system again in approximately 12 months to monitor fluid condition. Sodium ppm levels are severely high. Calcium ppm levels are severely high.
10/27/18	The fluid is in good condition, no significant changes since sample from 2015. The increased GCD@90C show some signs of fluid degradation, but not a concern at this time. The Sodium and Calcium may have originated from some contamination at system startup, but should not affect the performance of the fluid. Recommend sampling system again in approximately 12 months to monitor fluid condition. Sodium and Calcium ppm levels are abnormally high. (GCD) 90% Distillation Point is high.
09/14/15	The fluid is in good condition overall. The increased GCD@90C show some signs of oxidation and thermal degradation, but not a concern at this time. The contamination of Sodium and Calcium should and may have originated from the additives in a water based cleaning fluid at system startup, but should not affect the performance of the fluid. Recommend sampling system again in approximately 6 months to monitor. (GCD) 90% Distillation Point is high. Sodium and Calcium ppm levels are severely high.

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