

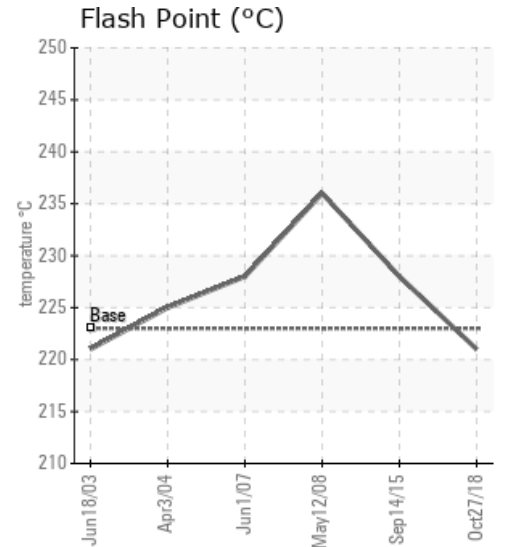
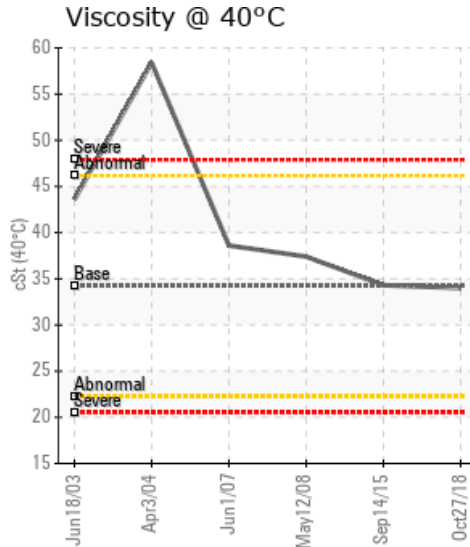
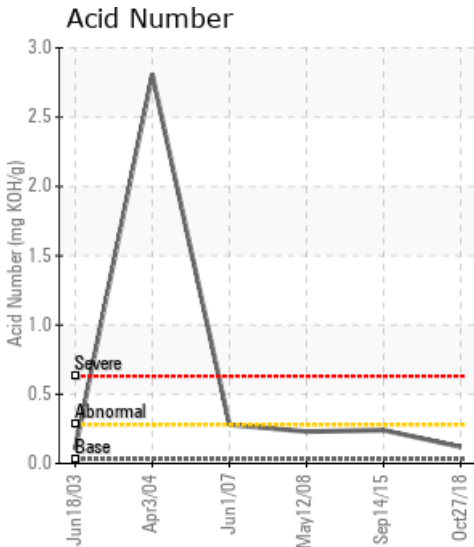
RADIUM FURNACE 1

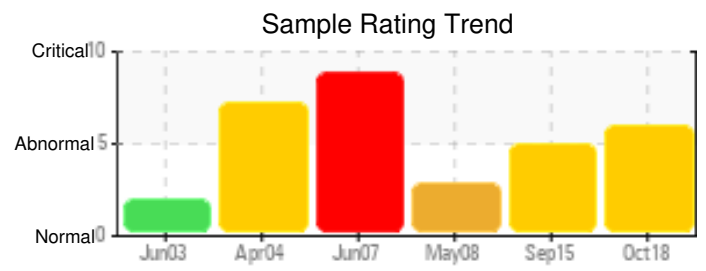
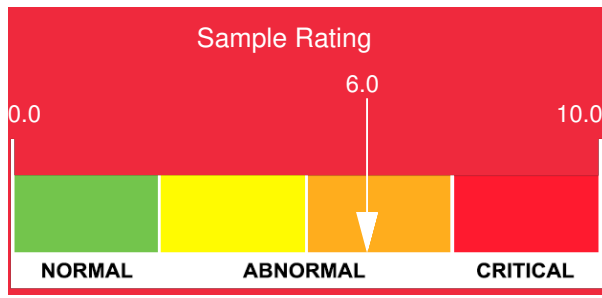
Customer: PTRHTF20164	System Information	Sample Information
CANFOR - RADIUM HOT SPRINGS 4685 FORSTERS LANDING RD Radium Hot Springs, BC V0A 1M0 Canada Attn: Mike Gaudette Tel: (250)347-6103 E-Mail: mike.gaudette@canfor.com	System Volume: 110000 ltr Bulk Operating Temp: 482F / 250C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make:	Lab No: 02251215 Analyst: Rob Spiller Sample Date: 10/27/18 Received Date: 11/13/18 Completed: 11/15/18

Recommendation: 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.

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

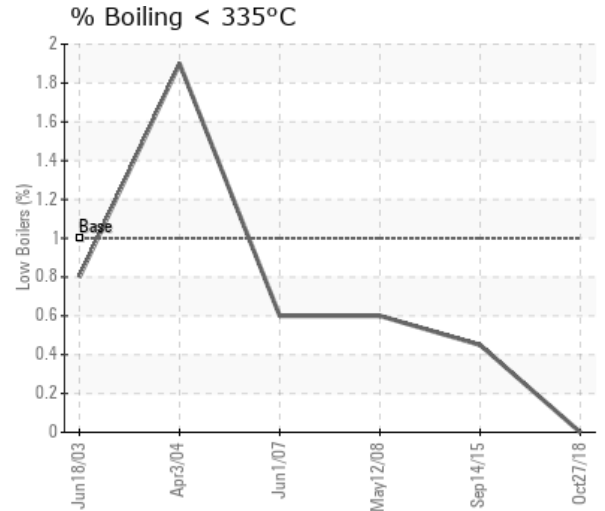
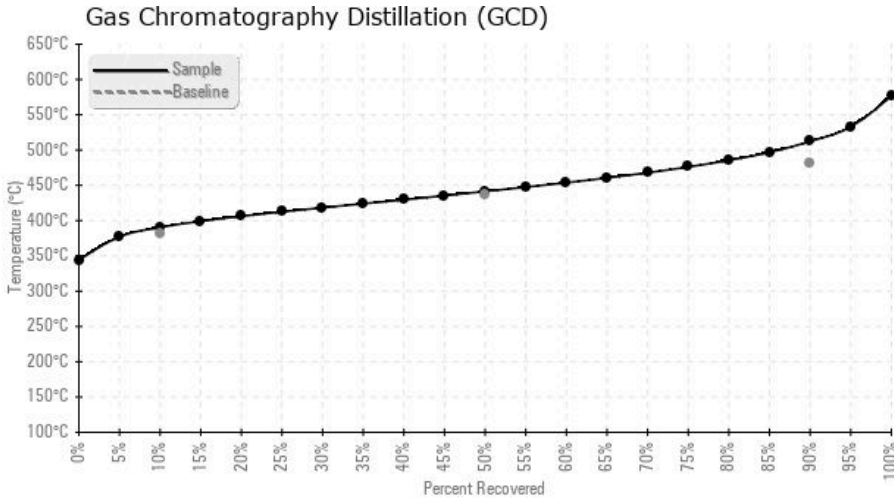
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
10/27/18	11/13/18	6y		430 / 221	105.3	34.0	0.12	0.108	735 / 390	827 / 441	954 / 512	0.00
09/14/15	09/24/15	14y		442 / 228	263.1	34.3	0.24	0.088	737 / 392	827 / 442	947 / 508	0.45
05/12/08	05/12/08			457 / 236	86	37.4	0.23	0.46	721 / 383		912 / 489	0.6
06/01/07	06/11/07			442 / 228	160	38.6	0.28	0.82	716 / 380		898 / 481	0.6
04/03/04	04/20/04			437 / 225	14	58.4	2.81		702 / 372		999 / 537	1.9
06/18/03	06/18/03			430 / 221	145	43.6	0.1	0.06	725 / 385		963 / 517	0.8
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
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
05/12/08	17	0	0	1	0	0	0	0	0	0	3	37		0	0		0			0	0	0	2	0
06/01/07	29	0	0	0	0	0	0	0	0	0	7	82		0	0		0			0	1	0	0	1
04/03/04	25	0	0	1	1	0	0	0	0	0	1	33		0	0		0			0	0	0	4	2
06/18/03	0	3	0	0	0	0	0	0	0	0	0	0		0	0		0			0	1	0	2	0
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	
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.
05/12/08	
06/01/07	
04/03/04	
06/18/03	

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