

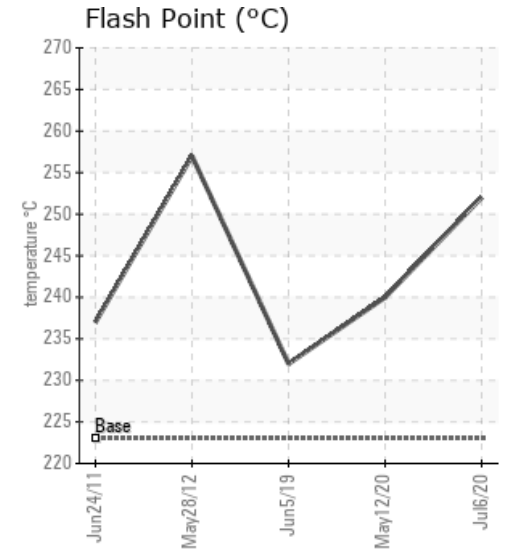
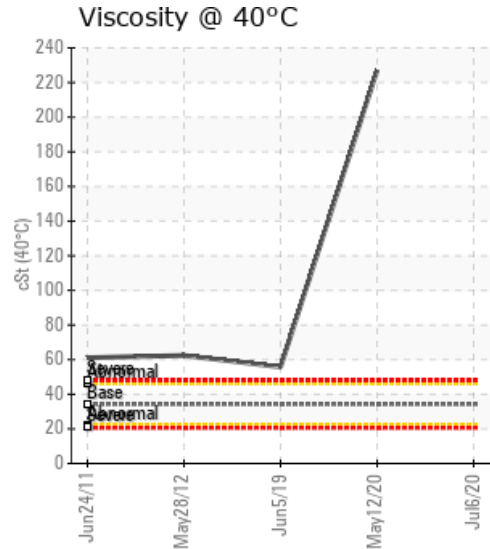
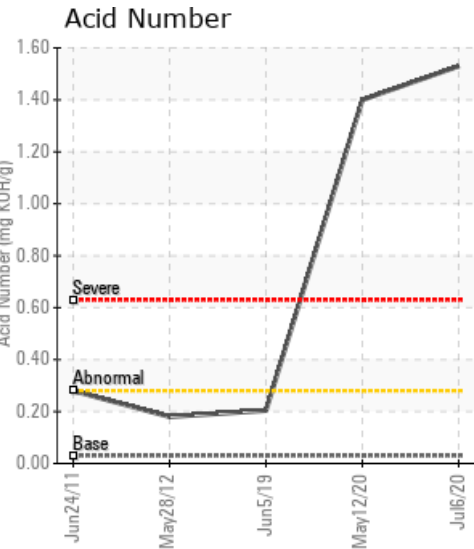
[02-11-60-04W6] H-802 Peyto Kakwa

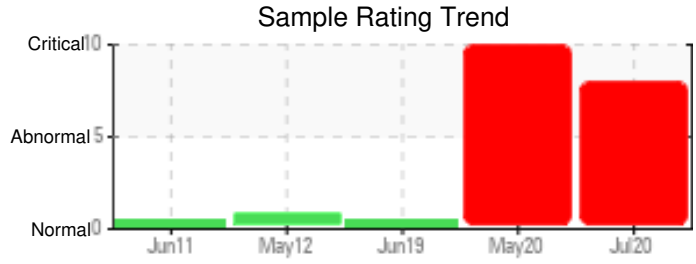
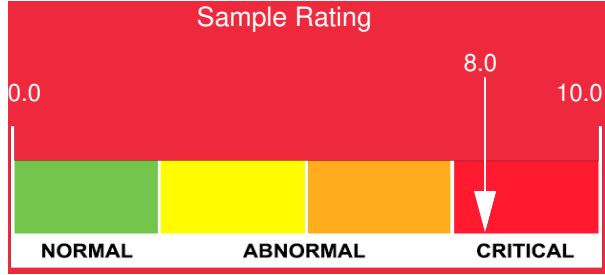
Customer: PTRHTF20175	System Information	Sample Information
QUADRA CHEMICALS 7802 98 STREET CLAIRMONT, AB T0H 0W0 Canada Attn: Quadra Samples Tel: E-Mail: quadra_samples@quadra.ca	System Volume: 13340 ltr Bulk Operating Temp: 752F / 400C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: ALCO	Lab No: 02380979 Analyst: Terry Veenstra Sample Date: 07/06/20 Received Date: 10/13/20 Completed: 10/15/20 Terry Veenstra terry.veenstra@petrocanadalsp.com

Recommendation: This fluid is heavily oxidized. Pentane Insolubles are at 7.07, viscosity is too high to measure, and acid number is severely high. Fluid needs to be changed.

Comments: Pentane Insolubles levels are severely high. Water contamination levels are marginally high. Water contamination levels are marginally high.. ppm Water contamination levels are marginally high. Acid Number (AN) is severely high. (GCD) 10% Distillation Point is abnormally high. (GCD) 50% Distillation Point is marginally high. Viscosity is too high to measure.

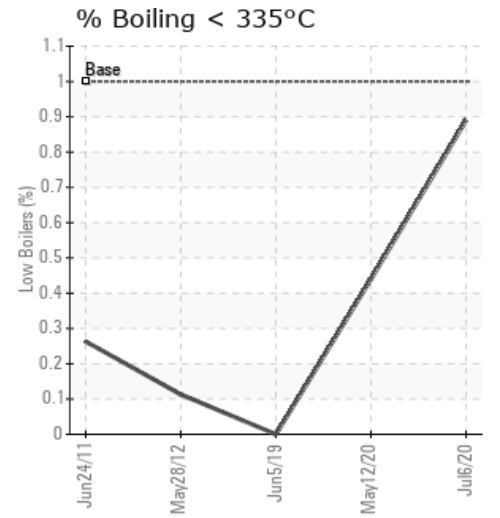
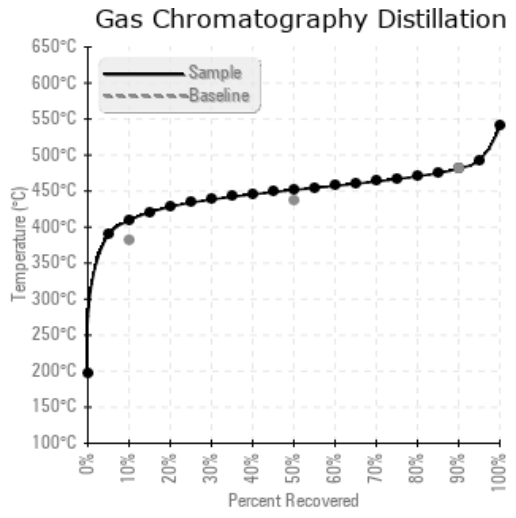
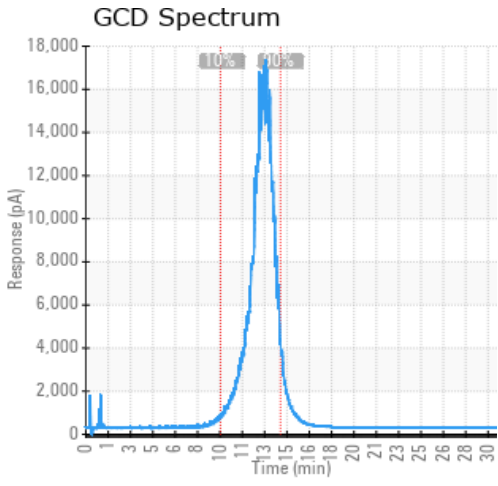
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
07/06/20	10/13/20	0y	FILTER INLET	486 / 252	545.9		1.53	7.07	769 / 409	845 / 452	898 / 481	0.89
05/12/20	05/21/20	0y	AFTER PUMP	464 / 240	212.6	227	1.40	3.14	786 / 419	848 / 453	893 / 479	0.44
06/05/19	06/19/19	0y	OIL RETURN	450 / 232	34.8	55.7	0.204	0.184	793 / 423	843 / 451	887 / 475	0.00
05/28/12	06/25/12		HOT OIL PUMP DISCH L	495 / 257	55	62.4	0.18		799 / 426	844 / 451	887 / 475	0.113
06/24/11	06/27/11			459 / 237	41	61.1	0.28	0.054	800 / 427	848 / 453	892 / 478	0.263
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
07/06/20	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05/12/20	523	1	0	0	0	0	0	0	0	0	1	0	3	0	0	0	4	0	0	0	0	0	0	0
06/05/19	49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05/28/12	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	15	1
06/24/11	50	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	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	
05/12/20	The oil is in a poor condition and no longer suitable for use. Fe content and AN are high. These are indications of the oil being acidic and corrosive wear is taking place. The viscosity is very high as a result of degradation. The Pentane Insoluble (solids) content of the fluid has exceeded the reportable limit of 0.5% sixfold. It is recommended to change out the fluid and prior to that do a system clean and flush. Please contact your Petro-Canada Tech Service Advisor for assistance. System volume and fluid service life are required to work on this. Iron ppm levels are severe. PQ levels are severe. Pentane Insolubles levels are severely high. Acid Number (AN) is severely high. (GCD) 10% Distillation Point is severely high. Visc @ 40°C is severely high. (GCD) 50% Distillation Point is marginally high.
06/05/19	This sample of Sunoco Heat Transfer 21 still looks to be in good condition and is OK for continued use. Flash point is normal and Pentane insolubles are low. Resample in 6 months.
05/28/12	The fluid is not in bad shape but our Petro-Therm would increase the heat transfer performance due to its lower viscosity. Better (more rapid) heat transfer means more heat carried away, so higher productivity and/or could run the boiler a few degrees lower to do the same job, which saves on gas. Petro-Therm can handle up to 316C in closed systems so 185C is a walk in the park. Its flash point is >220C so even above the operating temp.
06/24/11	

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