

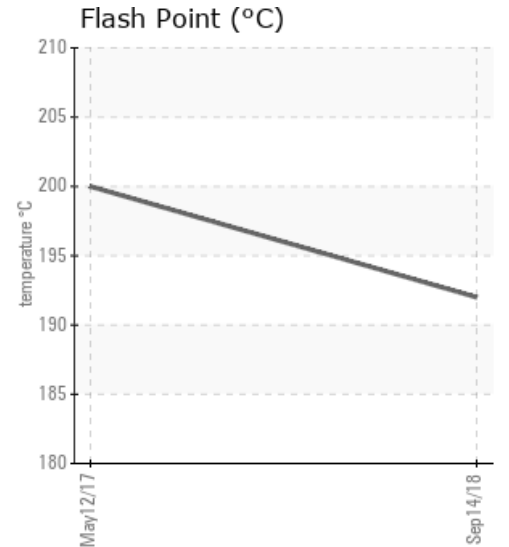
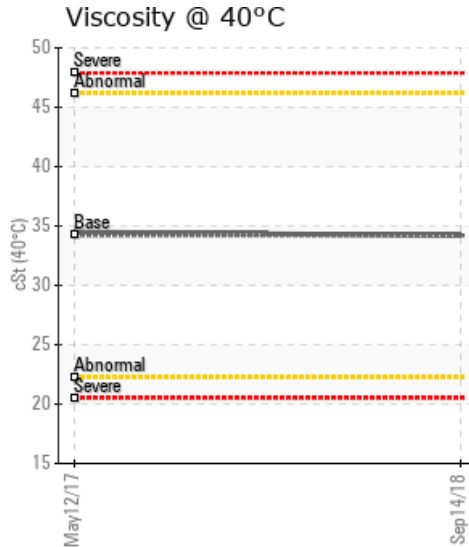
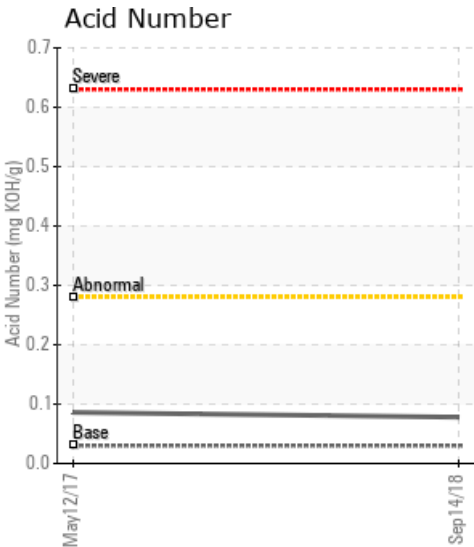
BROADWAY

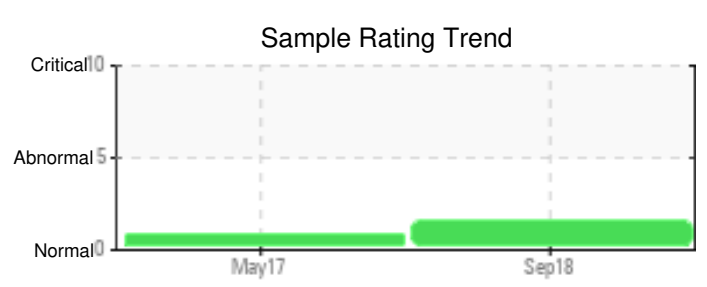
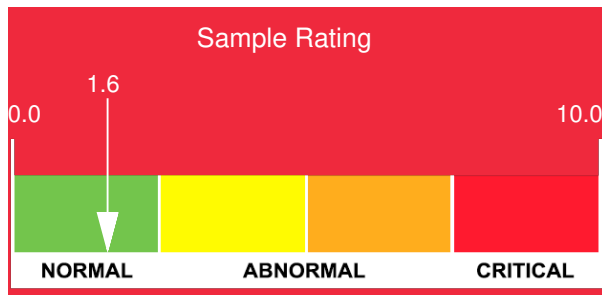
Customer: PTRHTF30102	System Information	Sample Information
Bitumar Inc. 11155 boul Ste-Catherine Est Montreal-Est, QC H1B 0A4 Canada Attn: Michel Lauzon Tel: E-Mail: Michel.Lauzon@bitumar.com	System Volume: 60000 ltr Bulk Operating Temp: 460F / 238C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make:	Lab No: 02249320 Analyst: Pierre Castagne Sample Date: 09/14/18 Received Date: 11/05/18 Completed: 11/09/18

Recommendation: Il y a une trace de bitume dans l'huile. L'analyse du fluide caloporteur, identifie un début de dégradation thermique: Les fractions légère (GCD @10%) sont à la baisse. Les fractions lourdes (GCD 90%) sont à la hausse. Le point éclair est à la baisse. Les fractions légères, Abaisse le point éclair, augmente la pression de vapeur, Abaisse la viscosité. Les fractions lourdes, augment la viscosité, favorise les dépôts de carbone. Si possible ventiller le système afin d'éliminer les fractions lourdes.

Comments: (GCD) 90% Distillation Point is abnormally high. COC Flash Point is marginally low.

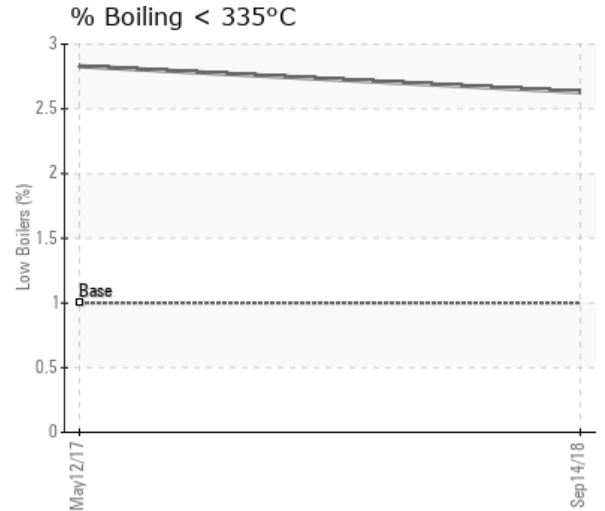
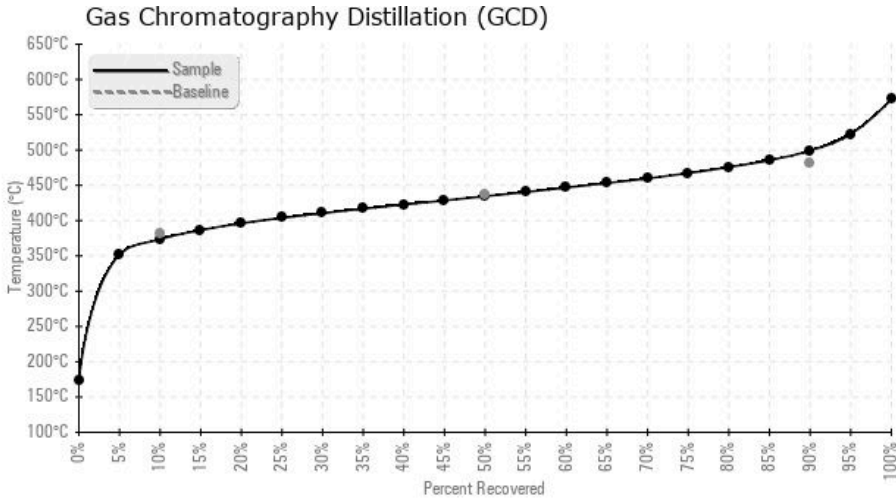
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
09/14/18	11/05/18	0y		378 / 192	108.6	34.2	0.078	0.237	704 / 374	814 / 435	931 / 499	2.63
05/12/17	05/18/17	0y	CIRC PUMP W COOLER	392 / 200	95.5	34.5	0.086	0.203	705 / 374	815 / 435	930 / 499	2.83
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
09/14/18	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05/12/17	2	0	0	0	0	0	0	0	0	4	0	0	0	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

05/12/17	On remarque une présence d'asphalte (Vanadium 3.8), les fractions lourdes (GCD @90%) sont élevées, ceux-ci augmentent la viscosité et favorise la formation de carbone. (GCD) 90% Distillation Point is abnormally high.
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