

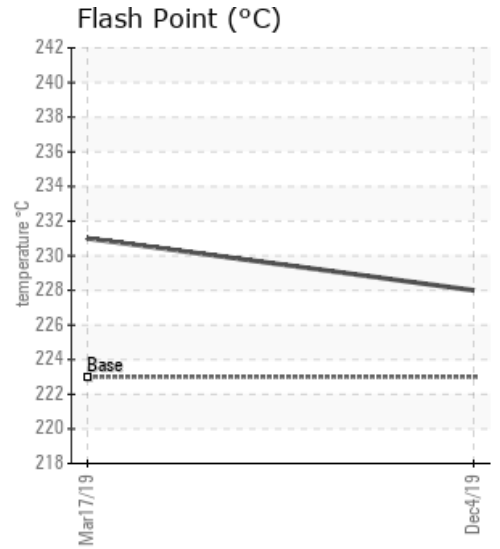
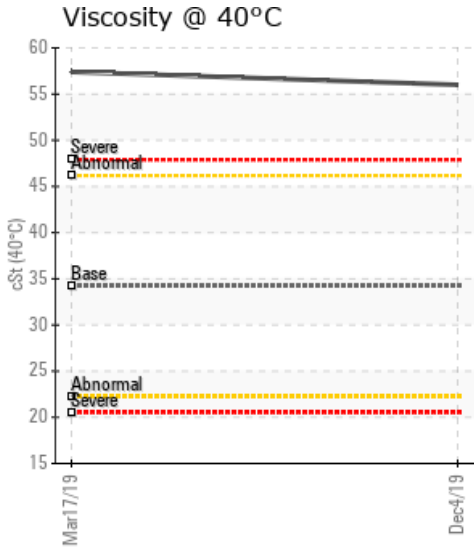
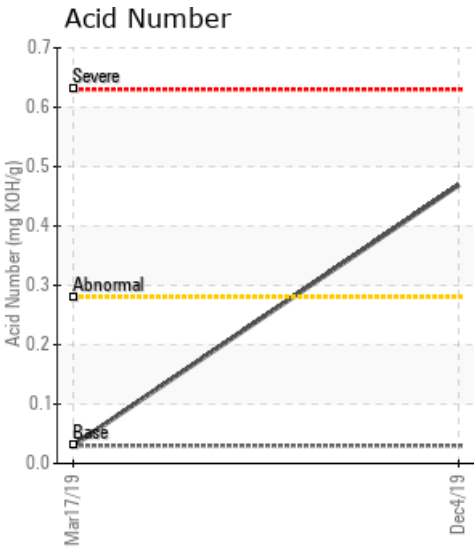
[11-21-55-20W5M] H-802

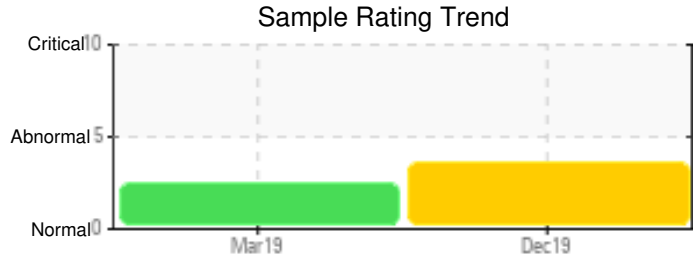
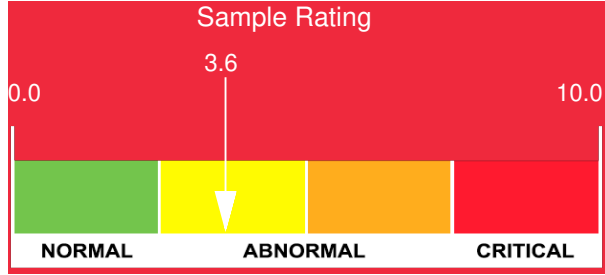
Customer: PTRHTF20228	System Information	Sample Information
PEYTO EXPLORATION 11-21-55-20 W5 Box 7198 EDSON, AB T7E 1V4 Canada Attn: Logan Pillage Tel: (780)712-9444 E-Mail: Lpillage@Peyto.com	System Volume: 26000 ltr Bulk Operating Temp: 370F / 188C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: ALCO	Lab No: 02325824 Analyst: Peter Harteveld Sample Date: 12/04/19 Received Date: 12/09/19 Completed: 12/12/19

Recommendation: The AN of the fluid has increased. AN has not reached the condemning limit yet (=1.0) but the acidity of the fluid is starting to cause more corrosion. Fe content increased from 68 to 78 ppm which is an indication of this. The viscosity of the fluid is high with 56 cSt/40C. This is the result of a high Pentane Insolubles (solids) content (2.41%). Filtration of the fluid is recommended. If filtration is in place, it is not efficient and should be looked at. Your Petro-Canada Tech Service Advisor can assist with this. Please re-sample in 6 months.

Comments:

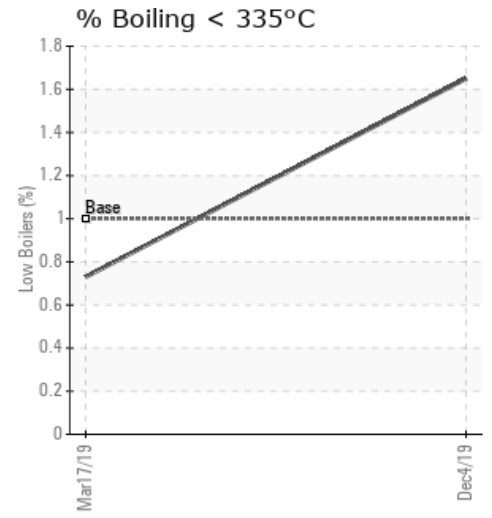
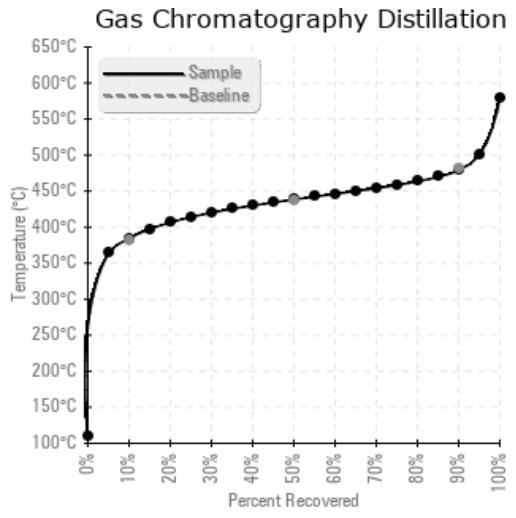
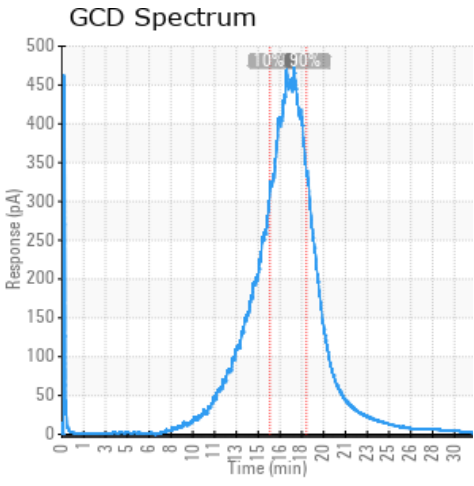
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
12/04/19	12/09/19	0y	DISCHARGE	442 / 228	39.5	56.0	0.469	2.41	724 / 384	821 / 438	894 / 479	1.65
03/17/19	03/18/19	0y	DISCHARGE OF THE PUM	448 / 231	28.8	57.4	0.03	1.35	735 / 391	832 / 445	895 / 479	0.73
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
12/04/19	78	0	0	0	0	0	0	0	0	0	2	3	0	0	0	0	1	0	0	0	1	0	0	1
03/17/19	68	0	0	0	0	0	0	0	0	0	2	4	0	0	0	0	1	0	0	0	1	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

03/17/19	The viscosity and Pentane Insoluble (solids) content of the fluid are high. It is recommended to start filtration of the fluid and re-sample after filtration. Pentane Insolubles levels are severely high. Visc @ 40°C is severely high.

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