

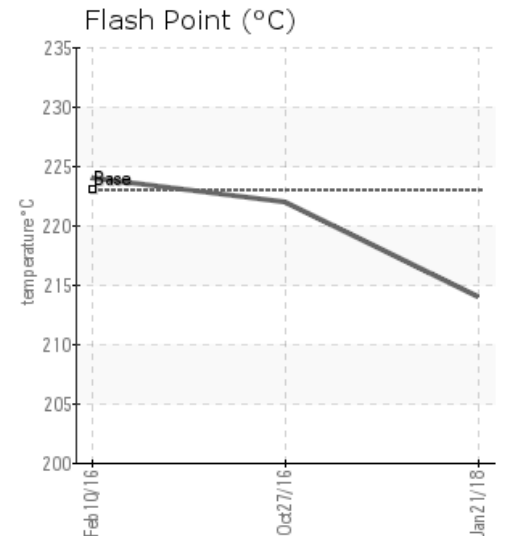
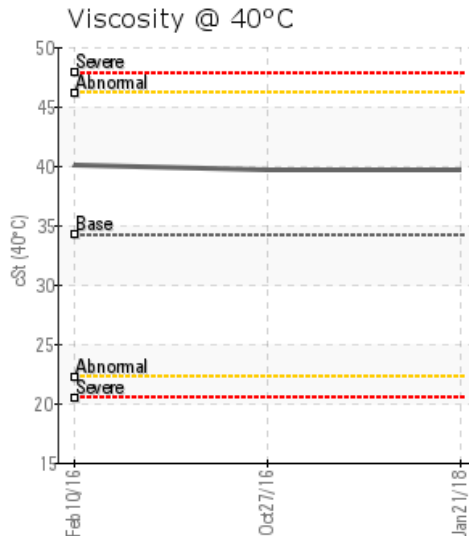
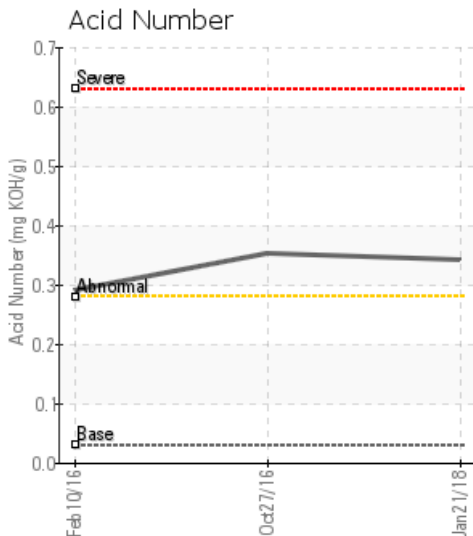
[PEYTO EXPLORTATION / 11-21-55-20W5M] H-1210 PLANT 2 HEAT MEDIUM

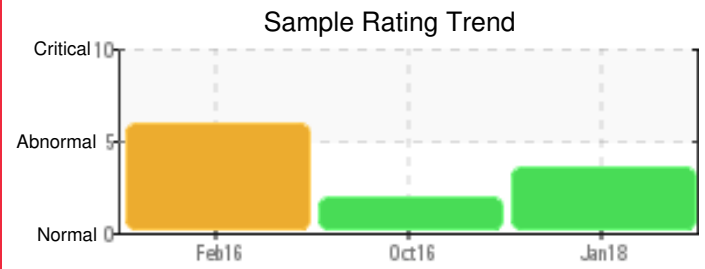
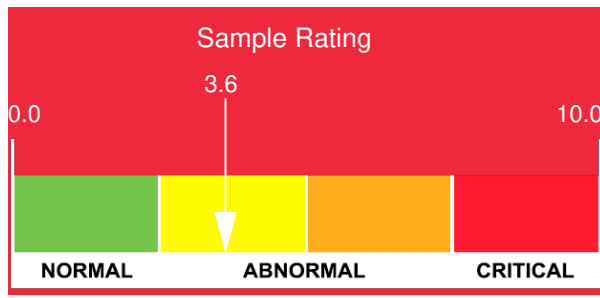
Customer: PTRHTF20124	System Information	Sample Information
PEYTO EXPLORATION 11-17-55-21W5 BOX 7198 EDSON, AB T7E 1V4 Canada Attn: Logan Pillage Tel: (780)712-9444 E-Mail: lpillage@peyto.com	System Volume: 26000 ltr Bulk Operating Temp: 370F / 188C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: ALCO	Lab No: 02194543 Analyst: Peter Harteveld Sample Date: 01/21/18 Received Date: 01/24/18 Completed: 01/26/18 To discuss this report contact Peter Harteveld at (780)967-4234

Recommendation: The fluid is showing signs of degradation but is in a reasonable condition and suitable for further use. It is however recommended to start filtration of the fluid to lower the Pentane Insoluble (solids) content to a more acceptable level. The warning limit for solids is 0.5% and this sample contains almost twice the amount of solids.

Comments: Pentane Insolubles levels are severely high. Acid Number (AN) is abnormally high. (GCD) 10% Distillation Point is marginally high.

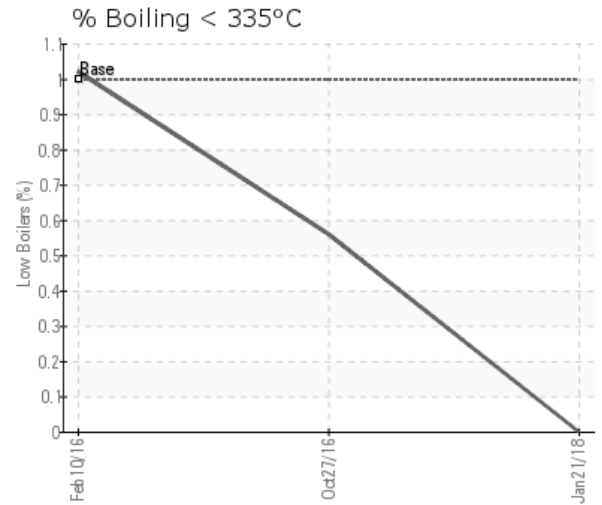
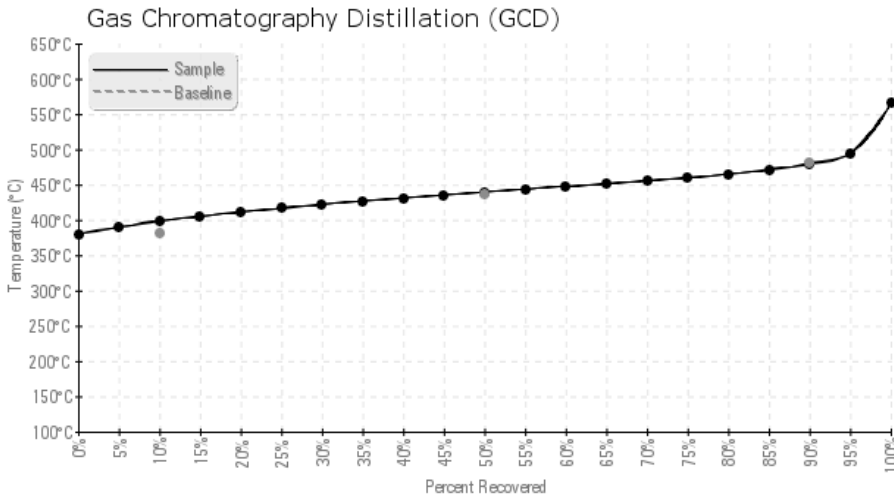
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
01/21/18	01/24/18	0y		417 / 214	15.6	39.7	0.341	0.955	749 / 398	823 / 440	895 / 480	0.00
10/27/16	11/01/16	0y	PUMP DISCAHRGE	432 / 222	17.3	39.7	0.352	0.536	715 / 379	811 / 433	909 / 487	0.56
02/10/16	02/18/16	0y	DISCHARGE OF PUMP	435 / 224	1189.2	40.1	0.29	1.07	713 / 378	810 / 432	907 / 486	1.02
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
01/21/18	38	0	0	0	0	0	0	0	0	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0
10/27/16	34	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0
02/10/16	52	0	0	0	0	0	0	0	0	0	2	1	0	0	0	1	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

10/27/16	The fluid is in good condition and suitable for further use. TAN and viscosity are elevated which is the result of normal degradation of the fluid. Pentane Insoluble (solids) content is at the limit. Future filtration has to be considered. Pentane Insolubles levels are abnormally high. Acid Number (AN) is abnormally high.
02/10/16	The water content of the fluid is high. TAN and viscosity are elevated. It is recommended to boil-off the water by venting to atmosphere. Pentane Insoluble (solids) content is high. It is recommended to filter the fluid. Please re-sample after boil-off and filtration. Indicate fluid service life at next sample. Water contamination levels are severely high. Water contamination levels are severely high.. ppm Water contamination levels are severely high. Pentane Insolubles levels are severely high. Acid Number (AN) is abnormally high.