

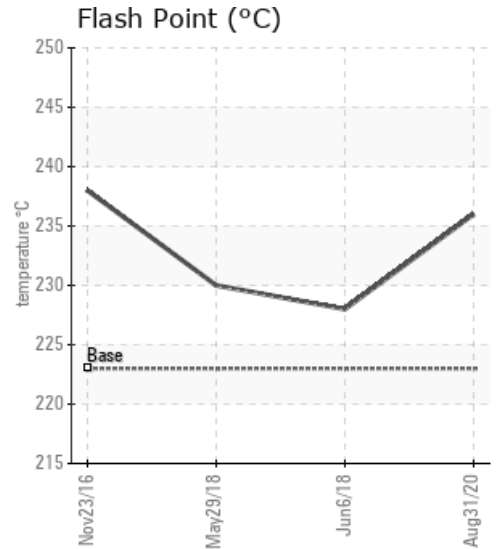
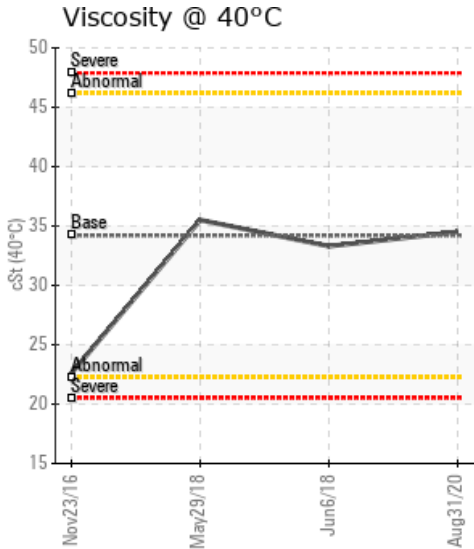
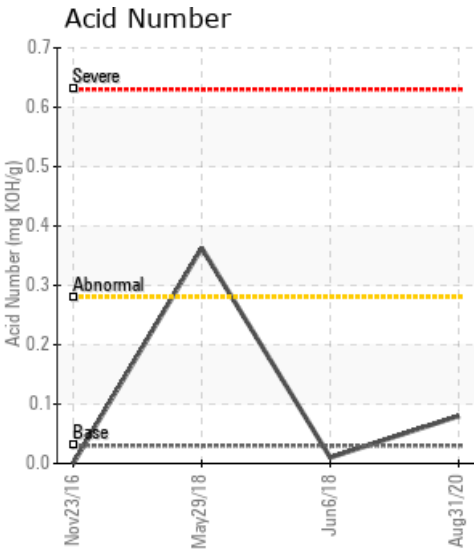
[06-12-044-13W5] H-920

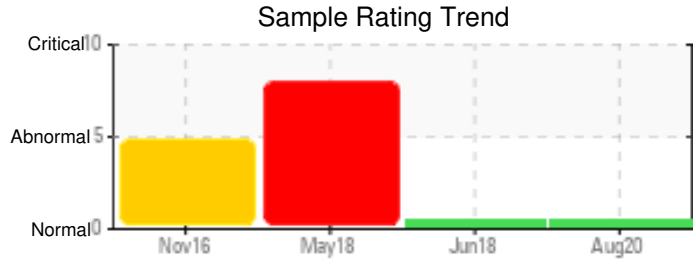
Customer: PTRHTF20227	System Information	Sample Information
PEYTO EXPLORATION Box 7198 EDSON, AB T7E 1V4 Canada Attn: Cory Pambrun Tel: (780)712-0217 E-Mail: cpambrun@peyto.com	System Volume: 500 ltr Bulk Operating Temp: 284F / 140C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: ALCO	Lab No: 02374013 Analyst: Terry Veenstra Sample Date: 08/31/20 Received Date: 09/03/20 Completed: 09/08/20 Terry Veenstra terry.veenstra@petrocanadalsp.com

Recommendation: Samples indicate that fluid is in good condition. Pentane Insolubles are low, Flash Point is high and GCD looks good. Resample in 6 months

Comments:

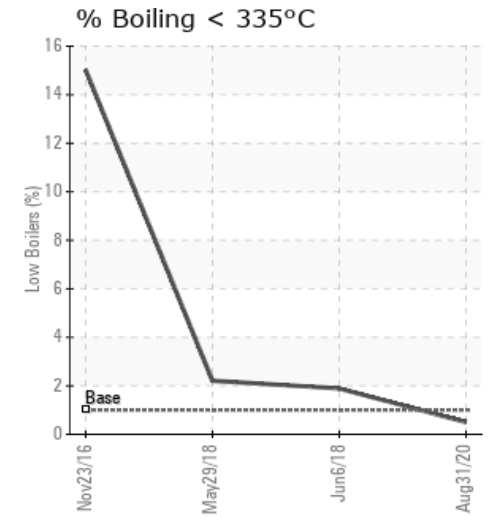
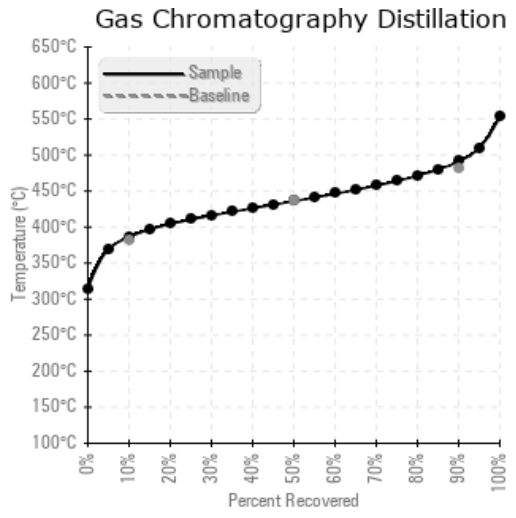
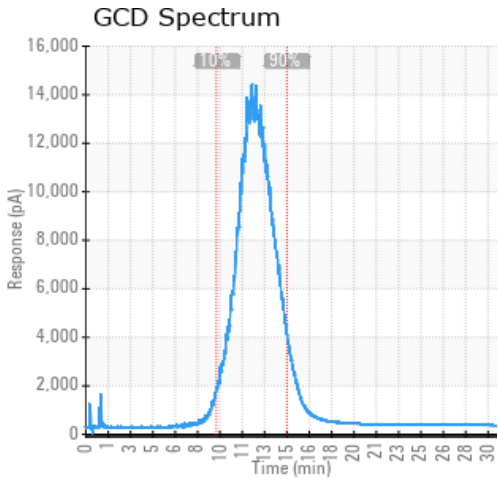
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
08/31/20	09/03/20	7h	SIGHT GLASS LOWPOINT	457 / 236	0.00	34.5	0.08	0.036	727 / 386	817 / 436	916 / 491	0.50
06/06/18	06/08/18	2h	SIGHT GLASS	442 / 228	3.3	33.3	0.01	0.049	713 / 378	805 / 430	905 / 485	1.89
05/29/18	05/31/18	2h	REBOILER BOTTOMS	446 / 230	59360.8	35.5	0.363	0.239	679 / 359	767 / 409	863 / 461	2.21
11/23/16	11/28/16	0h	SITE GLASS	460 / 238	250.7	22.6	0.000	0.029	569 / 298	783 / 417	925 / 496	15.02
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
08/31/20	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
06/06/18	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05/29/18	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0
11/23/16	1	0	0	0	0	0	0	0	0	0	4	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	
06/06/18	The fluid is in good condition and suitable for further use. Please re-sample in 12 months.
05/29/18	The fluid has a high water content. Percentage boil-off is elevated. AN is high for a fluid with only 2 service hours. The distillation curve is not representative for Petro-Therm. The 90% GCD temperature is low. All of these can be related to the high water content. Please boil-off the water and re-sample after doing this. When sending in the next sample please list the operating temperature of the fluid. Water contamination levels are severely high. Water contamination levels are severely high.. ppm Water contamination levels are severely high. (GCD) 90% Distillation Point is severely low. Acid Number (AN) is abnormally high.
11/23/16	The fluid viscosity is low. % boil-off <335 degrees C is high. 10% GCD temperature is very low and 50% GCD temperature is low. This combination of factors is not representative for Petro-Therm and would normally indicate thermal degradation of the fluid however since fluid service life is zero, it can also be a (mix with) different fluid like Chevron Heat Transfer Oil 22. (GCD) 10% Distillation Point is severely low. (GCD) % < 335°C is abnormally high. (GCD) 90% Distillation Point is marginally high.

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