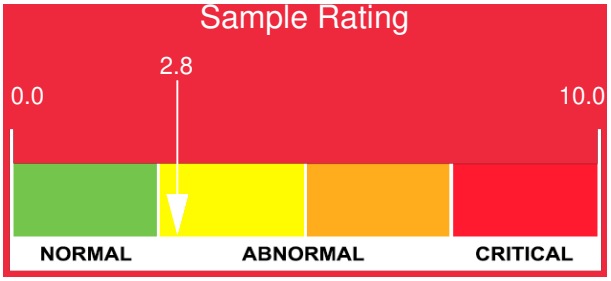
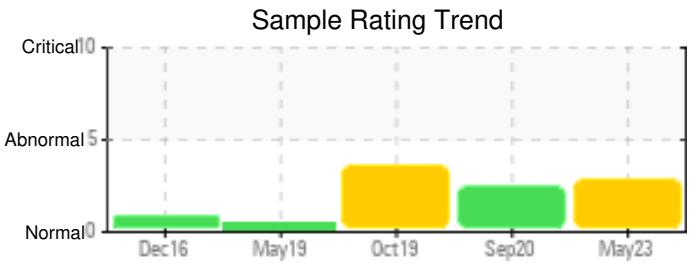




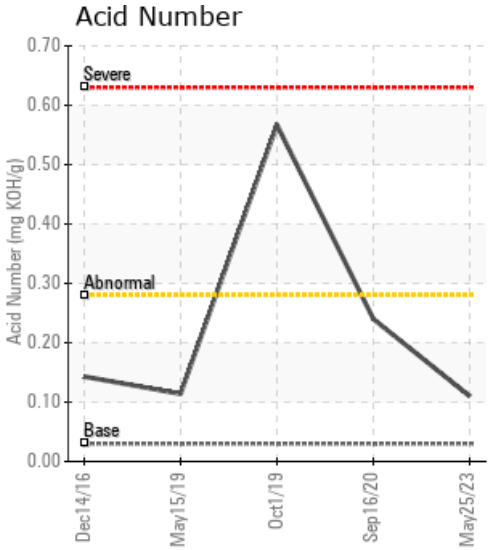
[12-31-53-19W5] H-802

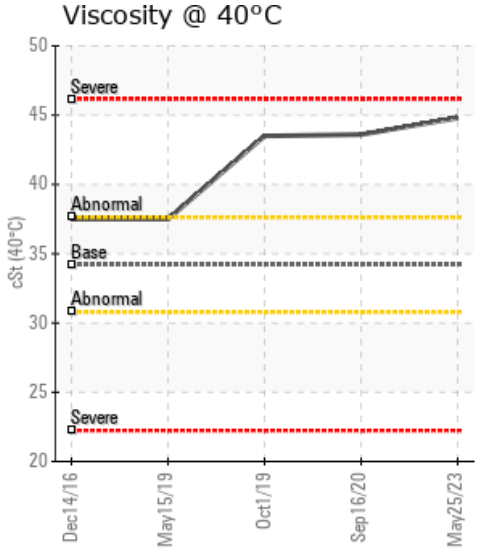
Customer: PTRHTF20229	System Information	Sample Information
PEYTO EXPLORATION Box 7198 EDSON, AB T7E 1V4 CA Attn: Steve Warren Tel: (780)712-5616 E-Mail: swarren@peyto.com	System Volume: 7000 ltr Bulk Operating Temp: 392F / 200C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: PROPAK	Lab No: 02561076 Analyst: Clinton Buhler Sample Date: 05/25/23 Received Date: 05/31/23 Completed: 06/22/23 Clinton Buhler Clinton.Buhler@HFSinclair.com

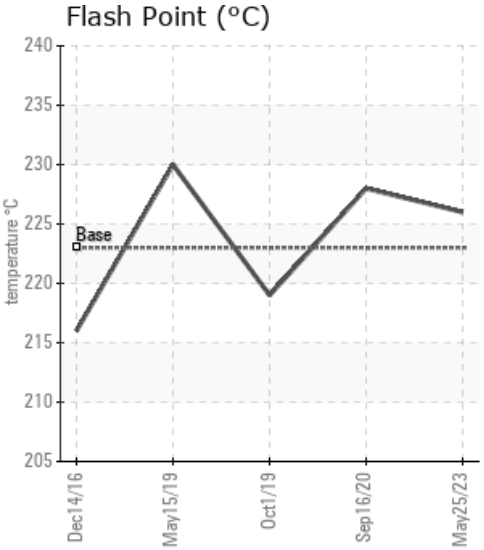
Recommendation: Analysis results indicate the fluid is in similar condition to the previous sample taken in 2020. Fluid viscosity has increased slightly yet solids content is remains relatively flat. Please ensure blanket gas remains functional in the expansion tank to prevent further fluid oxidation. Please re-sample in 6 months

Comments:

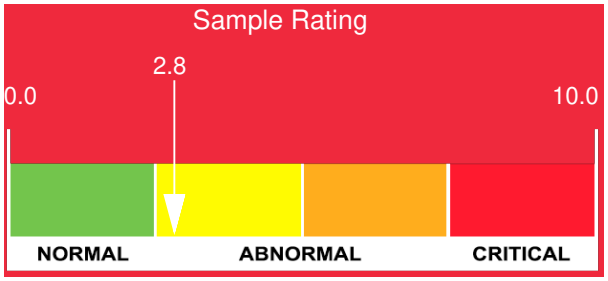
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
05/25/23	05/31/23	4.0y	BOTTOM OF PUMP	439 / 226	54.2	44.8	0.11	0.693	739 / 393	824 / 440	925 / 496	0.47
09/16/20	09/21/20	0.0y		442 / 228	29.6	43.6	0.24	0.785	731 / 389	820 / 438	922 / 495	0.34
10/01/19	10/07/19	6.0y		426 / 219	20.4	43.5	0.567	1.25	735 / 391	826 / 441	922 / 494	0.00
05/15/19	05/22/19	5.0y		446 / 230	43.7	37.5	0.114	0.204	724 / 384	800 / 427	900 / 482	0.00
12/14/16	12/19/16	3.0y	REBOILER BOTTOM	421 / 216	8.0	37.5	0.143	0.146	733 / 389	831 / 444	954 / 512	0.03
Baseline Data				433 / 223		34.2	0.03		720 / 382	817 / 436	900 / 482	1.00

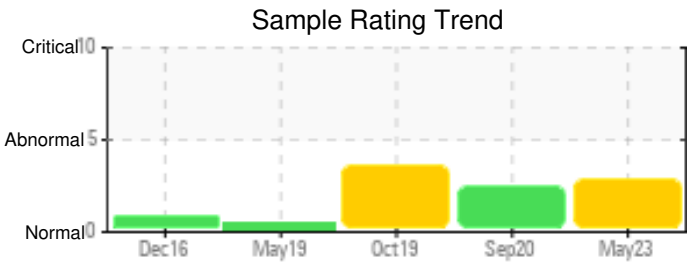






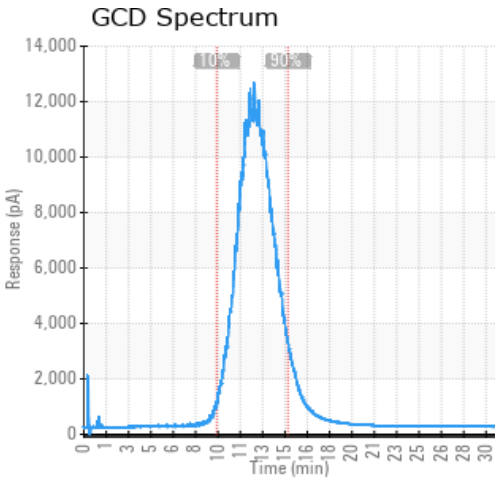
PETRO-CANADA LUBRICANTS

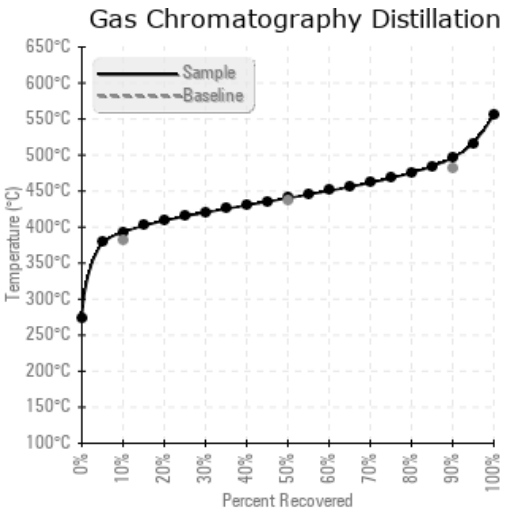


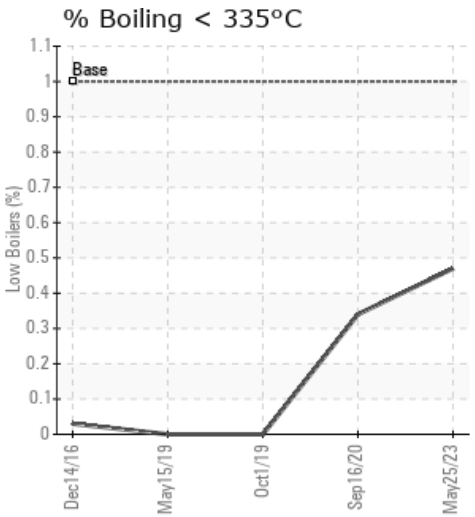


Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
05/25/23	79	0	0	0	0	0	1	0	0	0	0	8	6	0	0	0	0	0	0	0	0	0	0	0
09/16/20	87	0	0	0	0	0	0	0	0	0	0	9	7	0	0	0	0	0	0	0	2	0	0	0
10/01/19	99	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	1	0	0	0	2	0	0	0
05/15/19	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/14/16	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Baseline Data			0	0						0			0	0					0				0	

Elemental anaysis results (above) in parts per million (ppm). [10,000 ppm = 1.0%]







Historical Comments

09/16/20	Pentane insolubles are high however seem to be trending down. GCD @ 90% is sligtly high indicating some heavier ends in the oil. Ensure gas blanket is in place and functioning. Resample in 6 months. Pentane Insolubles levels are severely high. (GCD) 90% Distillation Point is marginally high.
10/01/19	According to the information on the analysis request form the fluid in the system has been in service for 6 months but is a used fluid. The condition of the fluid has degraded compared to the May 2019 analysis results. Viscosity and AN have increased. The fluid is starting to become acidic (AN = 0.57) which explains why the Fe content has increased to 99 ppm. (corrosion) Pentane Insoluble (solids) content is high at 1.25%. (0.5% is reportable limit). The fluid is suitable for further use but filtration of the fluid is strongly advised. In addition to filtration sweetening of the fill is recommended to stop the corrosion. Changing out 25% of the total volume should reduce the AN to a more acceptable level. Please re-sample after the sweetening has taken place or 3 months from now.Iron ppm levels are noted. Pentane Insolubles levels are severely high. Acid Number (AN) is abnormally high. (GCD) 90% Distillation Point is marginally high.
05/15/19	The fluid is in a good condition and suitable for further use. Please re-sample in 6 months.
12/14/16	The fluid is in good condition and suitable for further use. The 90% GCD temperature has increased as a result of fluid oxidation or mixing with a heavier fluid. The level of oxidation is normal for a fluid that has 3 years of service life. Ensure blanket gas is in place to prevent contact between the hot fluid and outside air. Please re-sample in 12 months. (GCD) 90% Distillation Point is abnormally high.

