

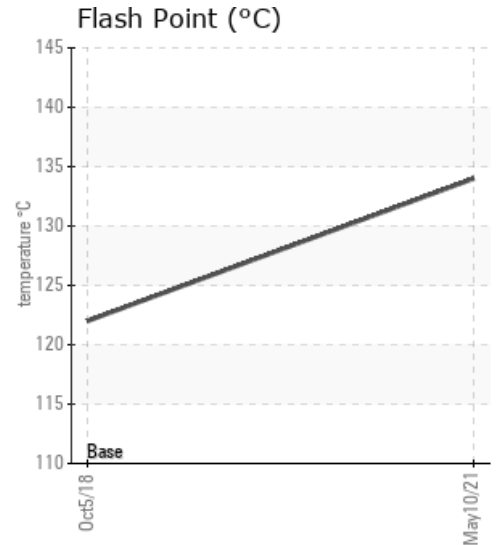
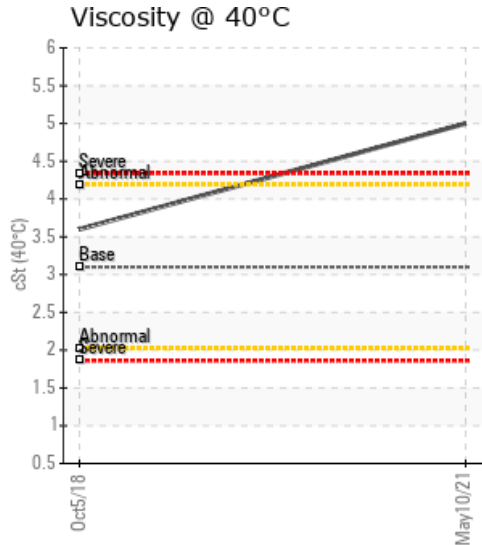
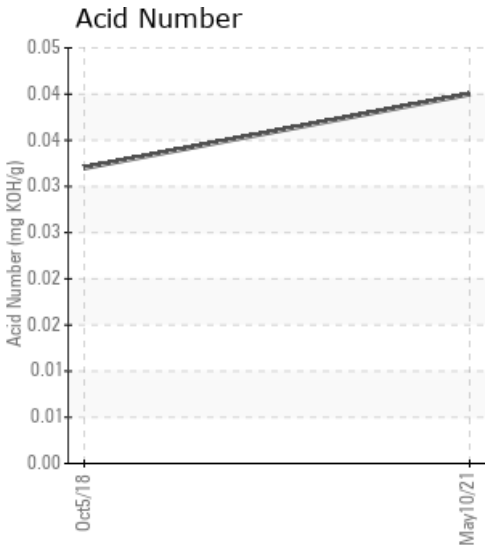
## PLAINS MIDSTREAM - EMPRESS BLANC 1-5

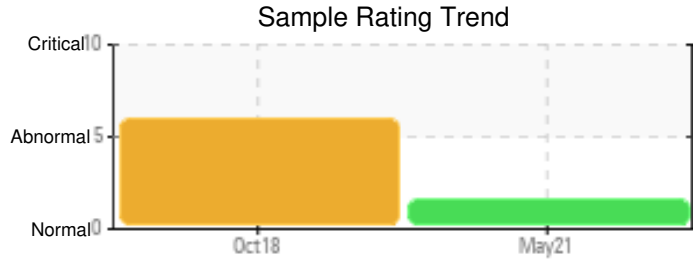
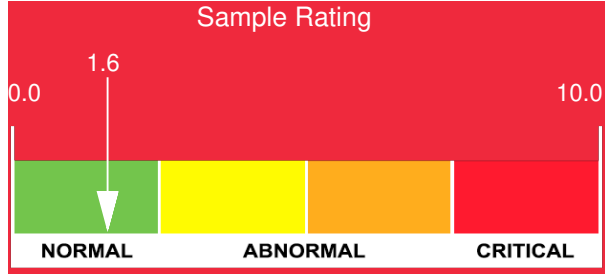
Customer: PTRHTF20253	System Information	Sample Information
Plains Midstream Canada LCD 1 SOUTH PO BOX 1150 EMPRESS, AB T0J 1E0 Canada Attn: Sandeep Sekhon Tel: E-Mail:	System Volume: 0 ltr Bulk Operating Temp: 302F / 150C Heating Source: Blanket: Fluid: ESSO OIL 1156 Make: ESSO	Lab No: 02421186 Analyst: Kevin McDermott Sample Date: 05/10/21 Received Date: 05/13/21 Completed: 06/18/21 Kevin McDermott kevin.mcdermott@hollyfrontier.com

Recommendation: Fluid condition shows no sign of thermal degradation or oxidation therefore suitable for continued use.

Comments: Visc @ 40°C is abnormally high as well as Flash Point is marginally high. Both presumably due to partial charge of higher viscosity fluids.

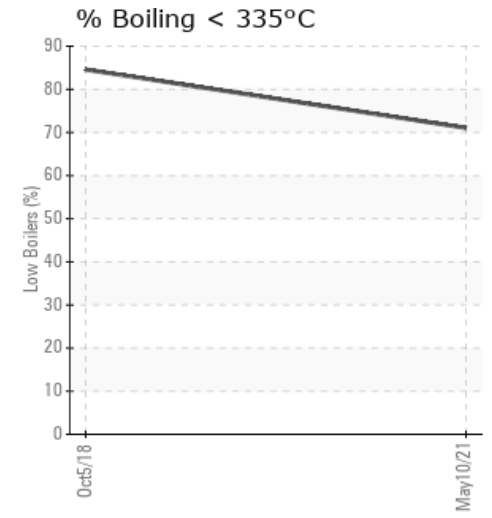
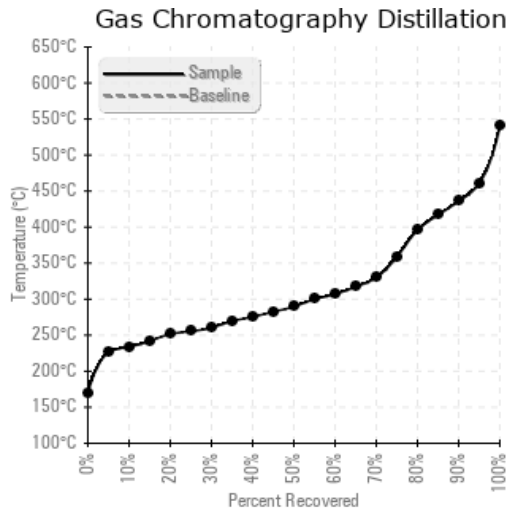
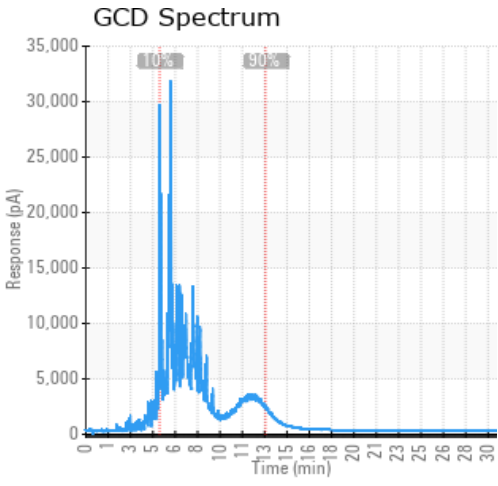
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
05/10/21	05/13/21	0.0y	phase 2	273 / 134	30.5	5.0	0.04	0.025	452 / 233	553 / 289	816 / 436	71.05
10/05/18	11/02/18	0.0y		252 / 122	45.9	3.6	0.032	0.277	438 / 226	510 / 265	739 / 393	84.58
Baseline Data				212 / 100		3.1						





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
05/10/21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	0	1	2
10/05/18	2	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 analysis results (above) in parts per million (ppm). [10,000 ppm = 1.0%]



### Historical Comments

10/05/18	The 1156 oil is a very low viscosity fluid with a very low flash point. Running a fluid with flash point below the bulk temp presents a fire risk. An ISO VG 32 HT fluid such as Petro-Therm would be much better in this application. .

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