

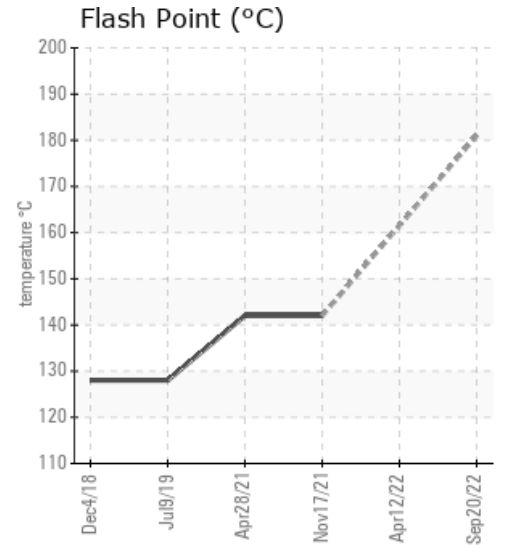
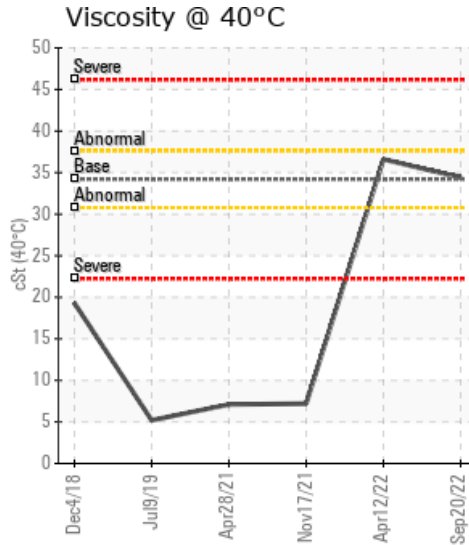
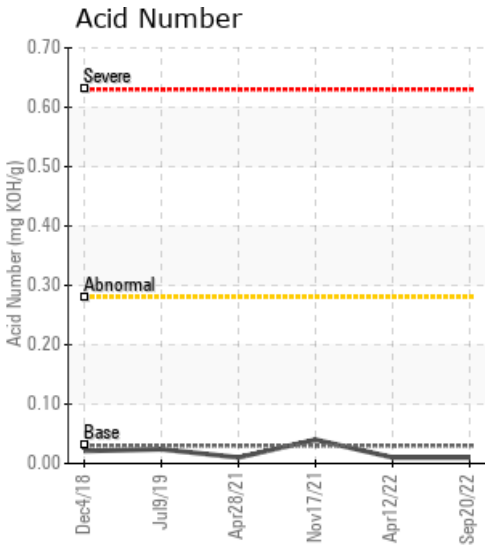
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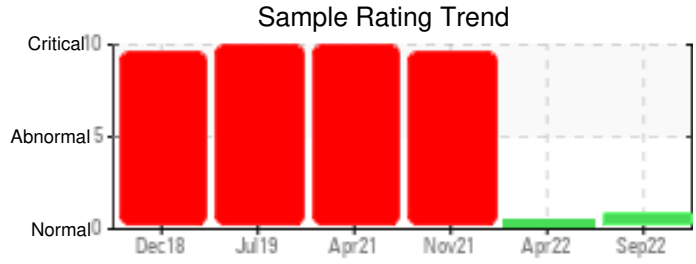
Customer: PTRHTF20208	System Information	Sample Information
Plains Midstream Canada PO Box 3210 Range Road 221 Fort Saskatchewan, AB T8L 2T2 Canada Attn: Marlon Gonzalez Tel: (780)992-2724 E-Mail:	System Volume: 1000 ml Bulk Operating Temp: 482F / 250C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make:	Lab No: 02513071 Analyst: Terry Veenstra Sample Date: 09/20/22 Received Date: 09/26/22 Completed: 09/29/22 Terry Veenstra terry.veenstra@HFSinclair.com

Recommendation: This samples indicates that the oil is in good condition and suitable for continued use. Resample in 6 months.

Comments: COC Flash Point is marginally low.

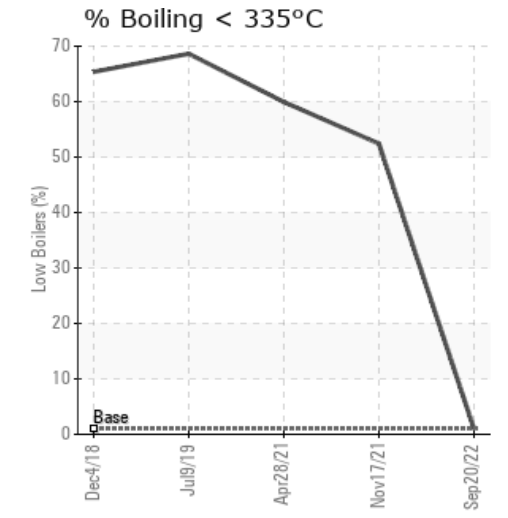
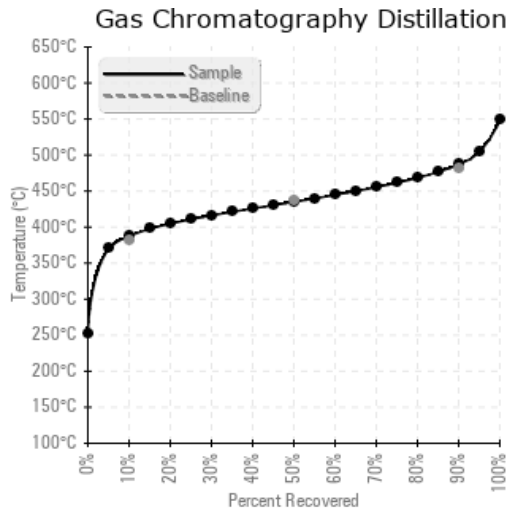
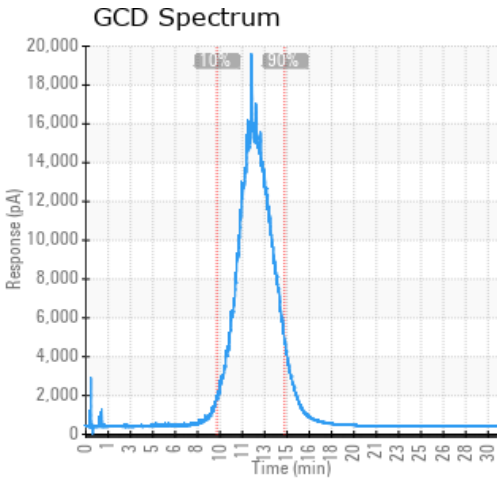
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
09/20/22	09/26/22	0.0y	AFTER FILTERING	358 / 181	119.9	34.4	0.01	0.070	729 / 387	815 / 435	908 / 487	1.01
04/12/22	04/18/22	0.0y	after filtering syst		333.5	36.6	0.01	0.035				
11/17/21	11/22/21	0.0y	Surge drum	288 / 142	19.5	7.2	0.04	0.026	458 / 237	616 / 324	858 / 459	52.42
04/28/21	05/05/21	22.0y	After filtering syst	288 / 142	24.2	7.1	0.01	0.018	456 / 235	581 / 305	838 / 448	59.94
07/09/19	07/12/19	20.0y		262 / 128	40.9	5.2	0.024	0.014	445 / 230	549 / 287	814 / 435	68.64
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
09/20/22	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04/12/22	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/17/21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04/28/21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07/09/19	0	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	
04/12/22	*** GCD analysis and Flash Point could not be performed because of the high water content in the sample ***Excessive amounts of water in sample. Check sample point to ensure the sample is representative of the fluid in the system. Viscosity of fluid indicates this is now new Petro-Therm.Vent system to eliminate and water vapors. Excessive free water present.
11/17/21	This oil viscosity is 7.2 cSt @ 40°C so is still the majority Essotherm Light (1156). The TAN is still quite low at 0.04 mgKOH/g and the flash point is still good @ 142°C indicating the fluid is in pretty good shape. The Pentane Insolubles are at 0.026% which is high then past samples but still in a good range. The GCD results are all over the map because this is a blend of different products. Resample in 6 months (GCD) % < 335°C is severely high. (GCD) 10% Distillation Point is severely low. (GCD) 50% Distillation Point is severely low. Visc @ 40°C is severely low. COC Flash Point is marginally low.
04/28/21	This oil viscosity is 7.1 cSt @ 40°C so is still the majority Essotherm Light (1156). The TAN is still quite low at 0.01 mgKOH/g and the flash point is still good @ 142°C indicating the fluid is in pretty good shape. The Pentane Insolubles are at 0.018% which is normal. (GCD) % < 335°C is severely high. (GCD) 10% Distillation Point is severely low. (GCD) 50% Distillation Point is severely low. Visc @ 40°C is severely low. COC Flash Point is marginally low. (GCD) 90% Distillation Point is marginally low.
07/09/19	Sample has dropped in Viscosity @ 40°C from 19.3 cSt to 5.2 cSt yet Flashpoint remains unchanged from precious sample. The laboratory states that the sample has a smell of solvent and GC shows light ends. This could be from from a process leak. Please contact Terry Veenstra from Petro-Canada Lubricants at (780) 713-9686 to discuss this sample further.

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