

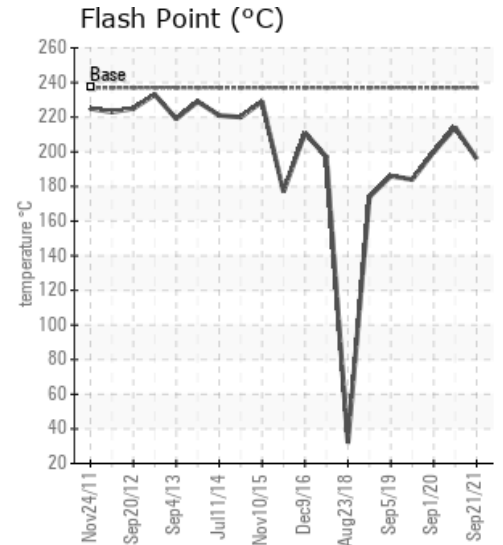
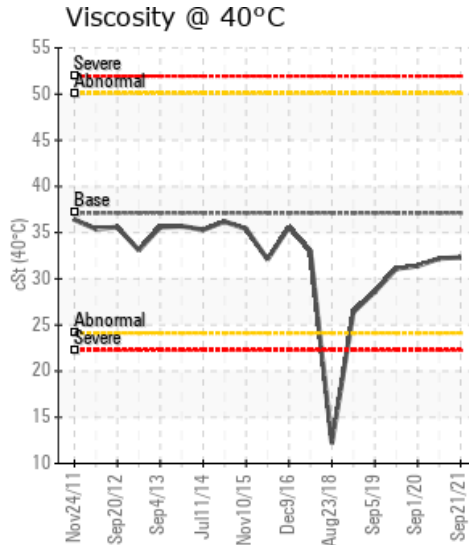
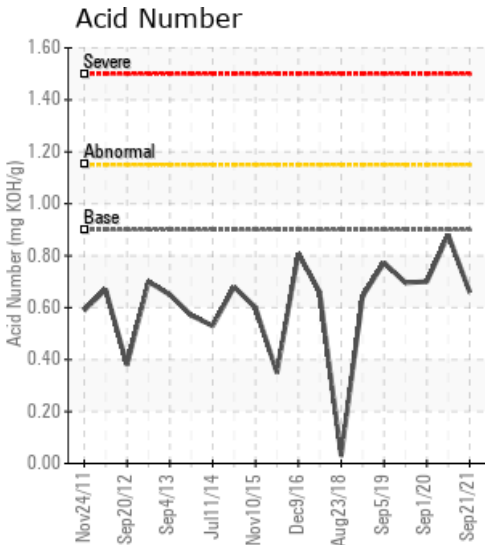
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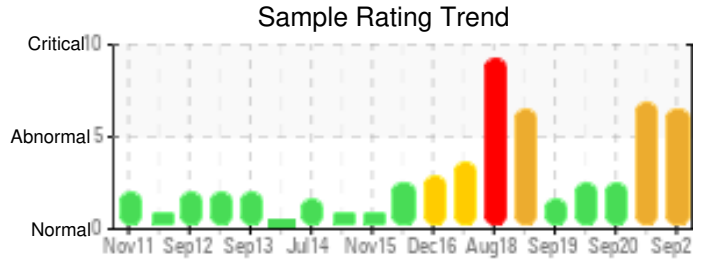
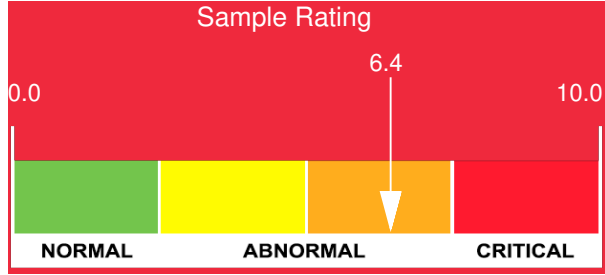
Customer: PTRHTF40043	System Information	Sample Information
MORA PRODUCTIE BV FREGATWEG 53 MAASTRICHT 6222NZ MAASTRICHT, 6222NZ Netherlands Attn: WILBERT SNIJERS Tel: E-Mail: w.snijers@klt.nl	System Volume: 800 ltr Bulk Operating Temp: 300F / 149C Heating Source: Blanket: Fluid: PETRO CANADA PURITY FG HEAT TRANSFER FLUID Make:	Lab No: 02446369 Analyst: Luis Rodriguez Sample Date: 09/21/21 Received Date: 09/27/21 Completed: 10/15/21 Luis Rodriguez luis.rodriguez@hollyfrontier.com

Recommendation: Iron content keeps high. Is the sample taken correctly and really representative for the bulk of the system? The iron content cannot be explained with the TAN values that are OK. Otherwise the oil is fit for further use.

Comments: PQ levels are severe. Iron ppm levels are abnormal. (GCD) 90% Distillation Point is marginally high. COC Flash Point is marginally low.

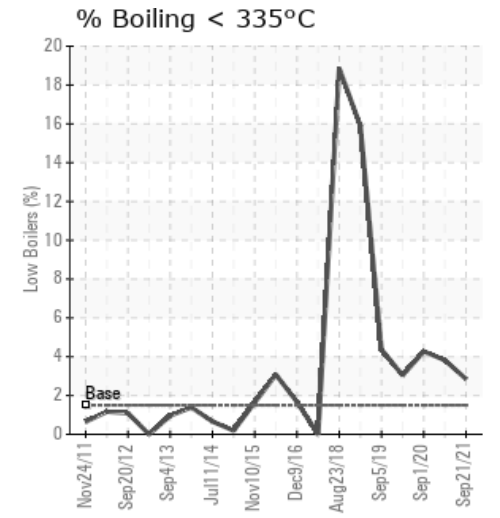
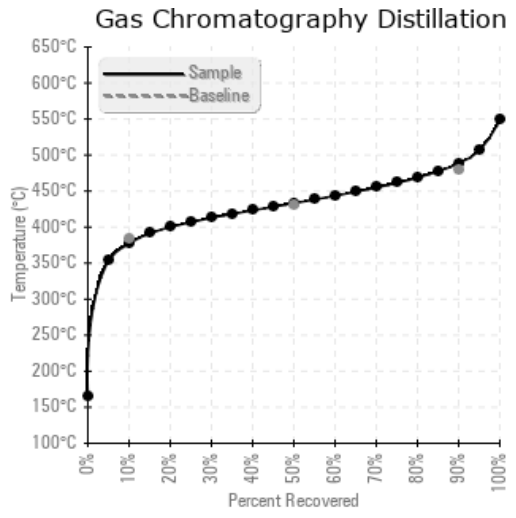
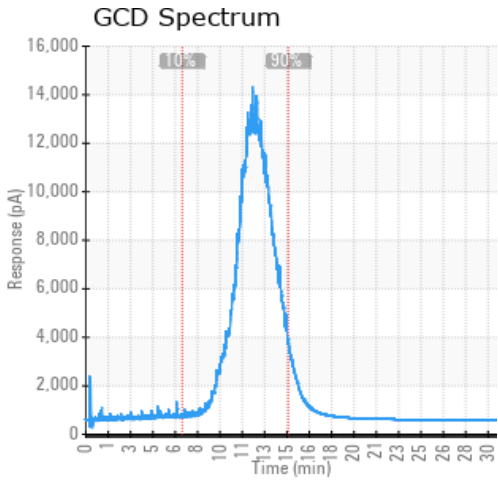
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
09/21/21	09/27/21	32.0m		385 / 196	20.3	32.3	0.66	0.199	711 / 377	812 / 433	911 / 489	2.85
03/09/21	03/15/21	27.0m		417 / 214	29.4	32.2	0.88	0.244	698 / 370	804 / 429	918 / 492	3.82
09/01/20	09/09/20	18.0m		392 / 200	13.8	31.4	0.70	0.114	700 / 371	810 / 432	913 / 489	4.27
02/18/20	02/25/20	15.0m		363 / 184	25.4	31.1	0.696	0.199	706 / 374	824 / 440	928 / 498	3.04
09/05/19	09/11/19	9.0m		367 / 186	26.5	28.6	0.773	0.084	699 / 370	814 / 435	917 / 492	4.37
Baseline Data				459 / 237		37.12	0.90		721 / 383	807 / 431	892 / 478	1.5





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
09/21/21	345	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	1	0	173	10
03/09/21	416	0	0	0	1	0	0	0	0	0	2	1	2	0	0	0	3	0	0	0	1	0	187	11
09/01/20	225	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	176	8
02/18/20	265	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	190	14
09/05/19	86	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	157	6
Baseline Data			0	0						0			0	0				0	0				230	

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



Historical Comments	
03/09/21	Iron content cannot be explained with the TAN values. If the system is new this could be a possible explanation, also for the previous results. Otherwise the oil is fit for further use. Iron ppm levels are severe. (GCD) 90% Distillation Point is marginally high.
09/01/20	High level of iron so please investigate the source if possible. Fit for further use and re-sample at next scheduled frequency as these are short frequencies with this system. Iron ppm levels are abnormal. (GCD) 90% Distillation Point is marginally high. COC Flash Point is marginally low.
02/18/20	COC Flash Point tracking slightly low but consistent. High level of iron so please investigate the source if possible. Initial sample (3m) was high to then drop at 9m, but return here at 15m. Fit for further use and re-sample at next scheduled frequency as these are short frequencies with this system. Iron ppm levels are abnormal. (GCD) 90% Distillation Point is abnormally high. COC Flash Point is abnormally low.
09/05/19	Marginally low on COC Flash Pt, but may be carryover from previous oil charge. Short sampling frequencies evident and recommend sample again on the current short frequency to monitor oil condition. COC Flash Point is abnormally low. (GCD) 90% Distillation Point is marginally high.

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