

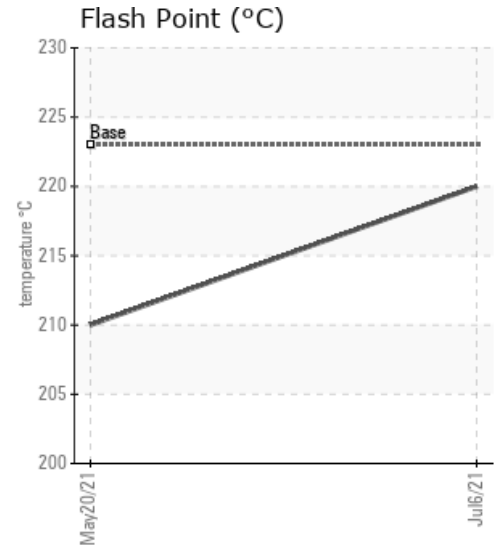
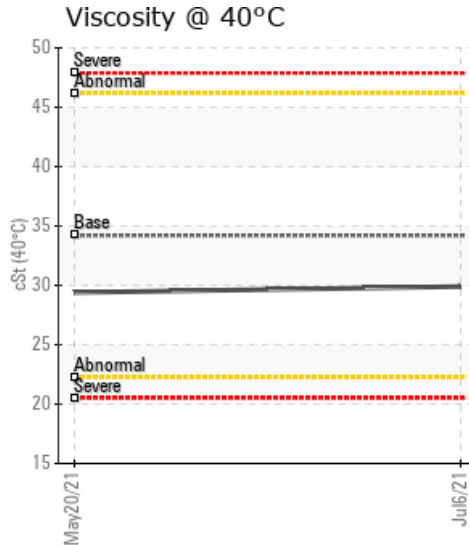
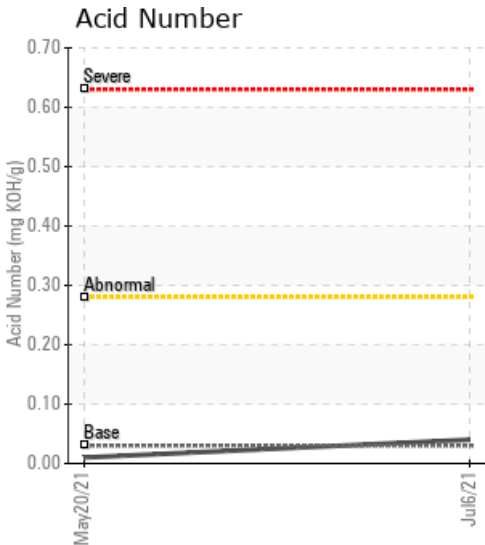
## [TRUCK POTENTIALLY HAD CONTAMINANTS] RE3 STORAGE TANK

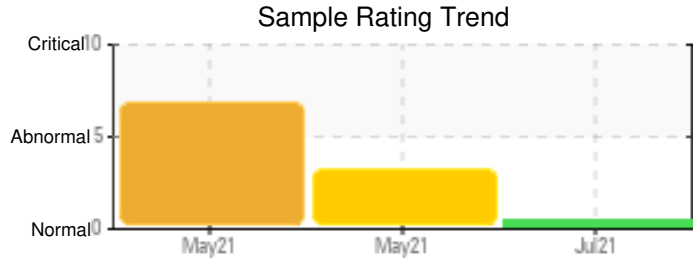
Customer: PTRHTF20187	System Information	Sample Information
KEYERA ENERGY- SIMONETTE GAS PLANT PO BOX 58 VALLEYVIEW, AB T0H 3N0 Canada Attn: Calvin Haskell Tel: E-Mail: calvin_haskell@keyera.com	System Volume: 23000 ltr Bulk Operating Temp: Not Specified Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make:	Lab No: 02433307 Analyst: Clinton Buhler Sample Date: 07/06/21 Received Date: 07/16/21 Completed: 07/27/21 Clinton Buhler Clinton.Buhler@hollyfrontier.com

Recommendation: RE3 Tank re-sample results indicate that the fluid is not as contaminated as the initial samples from the tank trucks indicated. Please ensure that the fluid is kept cool, clean and dry while in storage

Comments:

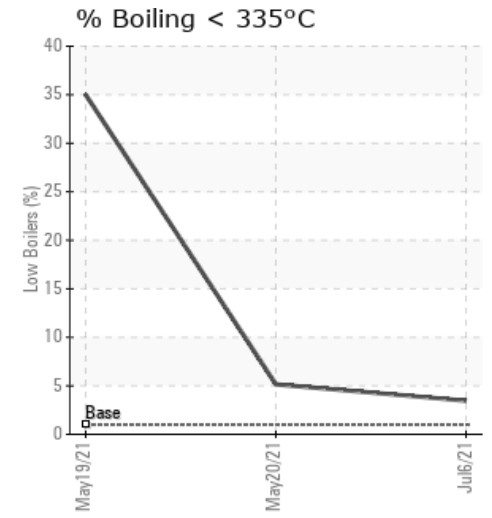
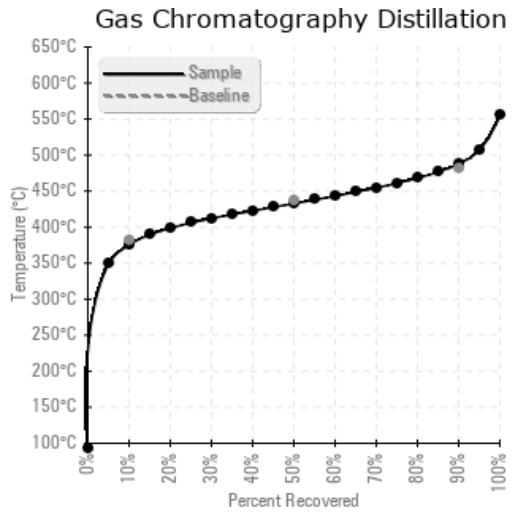
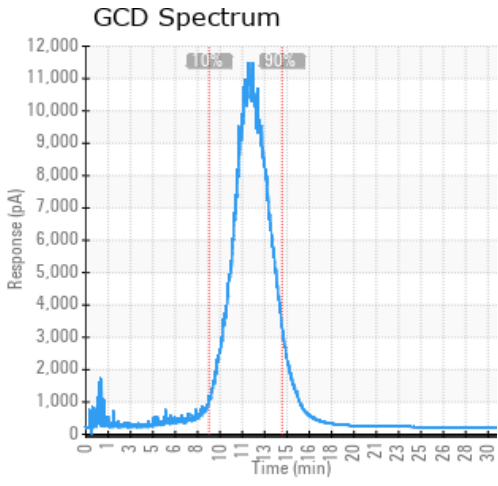
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
07/06/21	07/16/21	0.0h		428 / 220	42.2	29.9	0.04	0.118	708 / 376	811 / 433	910 / 488	3.46
05/20/21	06/08/21	0.0h	Load 3	410 / 210	3917.9	29.4	0.01	0.031	688 / 364	793 / 423	899 / 481	5.15
05/19/21	06/08/21	0.0h	Tank truck 2 - deliv		8144.5				78 / 25	991 / 533	1033 / 556	35.00
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
07/06/21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05/20/21	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	4	0	0	0	1	0
05/19/21	1	0	0	0	0	0	0	0	0	0	1	1	37	0	0	0	0	0	10	0	0	0	10	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	
05/20/21	The fluid is contaminated with excess water (3917 ppm and 1% emulsified water). If this sample is representative, there is risk of boil-over once put into service. High water content also is a catalyst for fluid oxidation and additive hydrolysis. It is advised to remove water from the fluid before use and before long-term storage. 5.15% low boiling vapor content, reduce flashpoint and fluid viscosity likely indicate mixing with process hydrocarbon if not from thermal degradation. This fluid would need to be vented once in service to remove low boiling vapors. Water contamination levels are severely high. Water contamination levels are severely high.. ppm Water contamination levels are severely high.
05/19/21	*** NOTE: This sample was 90% free water...not enough oil for complete testing ***If this sample is representative of the fluid in the tank, it is not suitable for service. Remove all water from tank and thermal fluid and re-sample. Water contamination levels are severely high. Water contamination levels are severely high.. ppm Water contamination levels are severely high. Potassium ppm levels are abnormally high. (GCD) % < 335°C is severely high. (GCD) 50% Distillation Point is severely high. (GCD) 90% Distillation Point is severely high. (GCD) 10% Distillation Point is severely low.

Petro-Canada makes no representation or warranty of any kind, either express or implied, as to the accuracy or completeness of the analysis and assumes no responsibility and shall have no liability whatsoever with respect to such analysis, or a party's use of it. Petro-Canada is a division of HollyFrontier Corporation.