

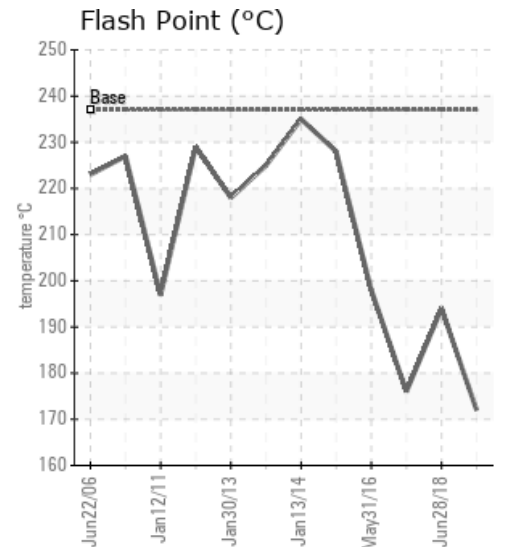
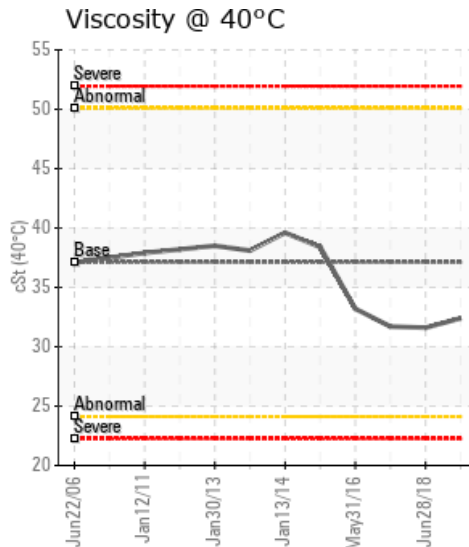
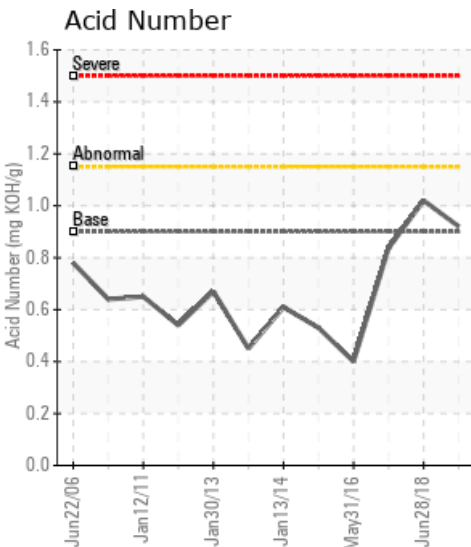
B300 GROEN

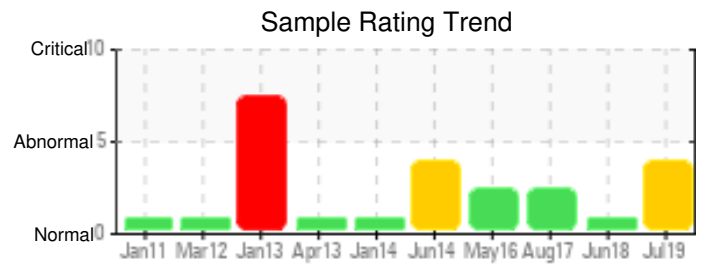
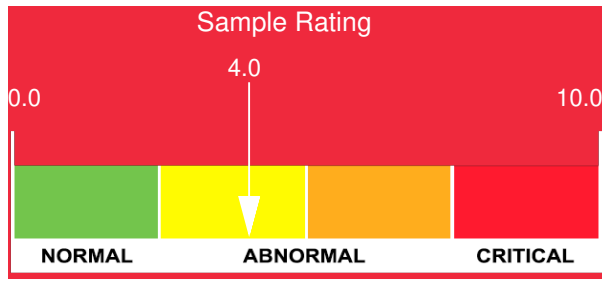
Customer: PTRHTF10078	System Information	Sample Information
WEST FORK CREATIONS 15 PEPSI DRIVE RED LODGE, MT 59068 USA Attn: JENNIFER BOTTORFF Tel: (406)446-3060 E-Mail: jenb@kingscupboard.com	System Volume: 70 gal Bulk Operating Temp: 475F / 246C Heating Source: Blanket: Fluid: PETRO CANADA PURITY FG HEAT TRANSFER FLUID Make: STERLCO	Lab No: 02300397 Analyst: Ron LeBlanc Sample Date: 07/22/19 Received Date: 08/01/19 Completed: 08/08/19

Recommendation: COC Flash Point is severely low. Pentane insoluble has risen in last 3 samples. Possible process leak? Be sure to purge the system before taking sample. Re sample and check results. Oil could have been heated too high or too quickly if shut down and started back up. Add new oil to bring COC Flash Point back up.

Comments: Pentane Insolubles levels are severely high. COC Flash Point is severely low. (GCD) 10% Distillation Point is marginally low.

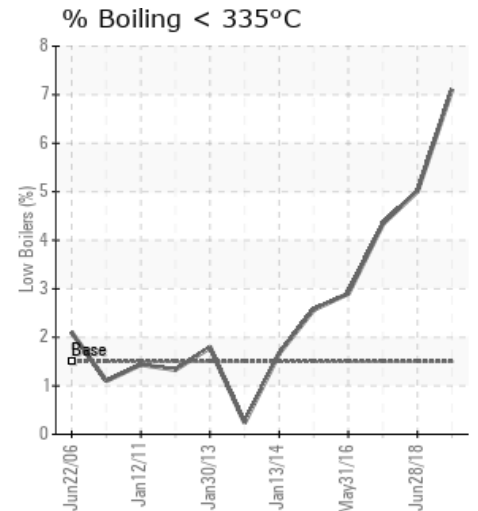
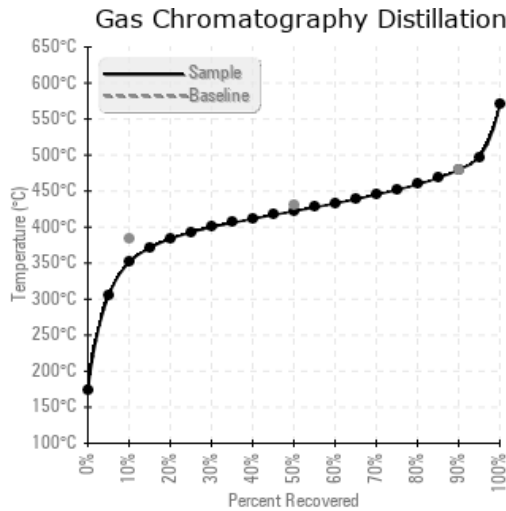
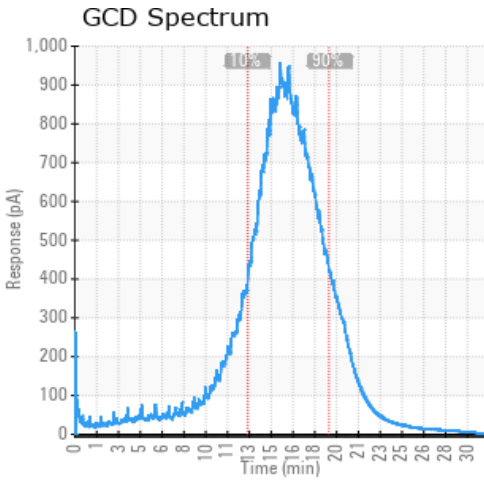
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
07/22/19	08/01/19	0y	DRAIN VALVE	342 / 172	74.5	32.4	0.920	0.618	664 / 351	792 / 422	895 / 480	7.11
06/28/18	07/23/18	5y	OIL DRAIN	381 / 194	23.7	31.6	1.02	0.316	685 / 363	800 / 427	899 / 482	5.01
08/15/17	08/25/17	12y		349 / 176	54.9	31.7	0.837	0.559	692 / 367	805 / 430	903 / 484	4.34
05/31/16	06/09/16	10y	DRAIN PLUG	388 / 198	21.5	33.2	0.40	0.107	705 / 374	809 / 431	901 / 483	2.90
06/30/14	07/09/14	8y	DRAIN PLUG	442 / 228	95.0	38.4	0.53	1.53	701 / 372	806 / 430	908 / 487	2.57
01/13/14	01/23/14	8y	STERLCO	455 / 235	155.0	39.6	0.61	1.33	718 / 381	816 / 436	907 / 486	1.67
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
07/22/19	2	0	0	0	0	0	0	0	0	0	4	0	7	0	0	0	0	0	0	0	0	0	159	0
06/28/18	2	0	0	0	0	0	0	0	0	0	6	0	6	0	0	0	0	0	0	0	0	0	140	0
08/15/17	4	0	0	0	0	0	0	0	0	0	14	2	13	0	0	0	0	0	0	0	0	0	141	0
05/31/16	0	0	0	0	0	0	0	0	0	0	29	0	4	0	0	0	0	0	0	0	0	0	136	0
06/30/14	44	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	4	0	0	171	3
01/13/14	43	0	0	0	6	13	0	0	0	0	2	0	0	0	0	0	0	0	0	6	2	0	164	17
Baseline Data			0	0						0			0	0					0				230	

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



Historical Comments

06/28/18	COC Flash Point has come up since previous sample. Pentane Insolubles have dropped significantly from previous sample. Purge more oil out of sample port before taking next sample. COC Flash Point is marginally low.
08/15/17	Sample appears to contain water. COC flash point is slightly low. Make sure quality sample was taken properly. Allow oil to flow freely for short time before capturing in container. Take another sample to confirm results. Pentane Insolubles levels are abnormally high. COC Flash Point is severely low.
05/31/16	Overall, the sample appears to be in good condition. The flash point is slightly low which indicates that the product has some minor thermal degradation occurring. We will monitor this further on the next sample. There is also an elevated level of Silicon which can indicate contamination in your system, or possibly this was picked up during the sampling process. We will monitor this in future samples as well. Please re-sample in 6 months time. Silicon ppm levels are abnormally high. COC Flash Point is marginally low.
06/30/14	The solids have risen but the other oil properties tested appear to be acceptable even after 8 years. If the solids are creating production issues we suggest to perhaps find a way to filter them or consider an oil replacement. Pentane Insolubles levels are severely high.
01/13/14	We are observing an increase in lead, iron and overall insoluble solids. We suggest to re-sample the system in 6 months to monitor more closely. If the system is equipped with filtration we suggest to evaluate its effectiveness and see what can be done to remove the solids and metallic elements observed. Only if the system has filtration. No need to spend money on installing one just for this situation. Lead ppm levels are abnormal. Pentane Insolubles levels are severely high.

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