

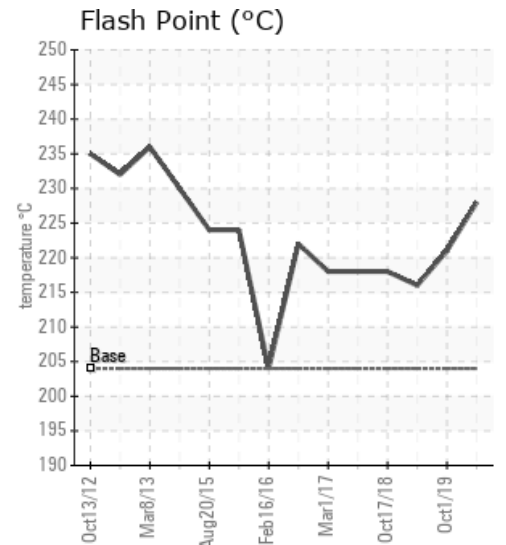
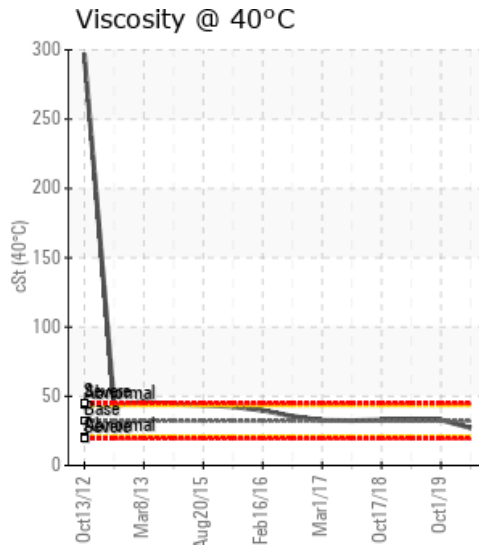
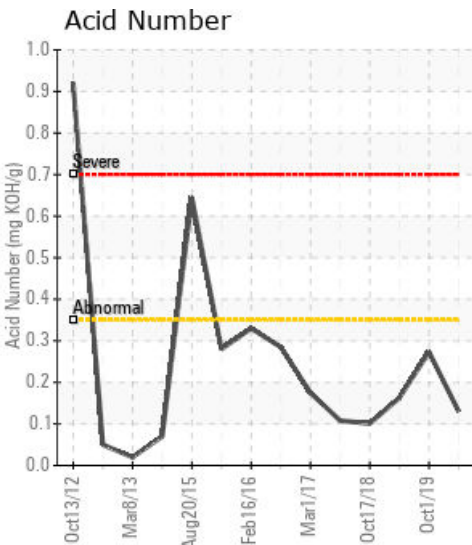
[DEASE DEVINE / LSD 12-27-81-18W6] CREW ENERGY SEPTIMUS PLANT SK-500

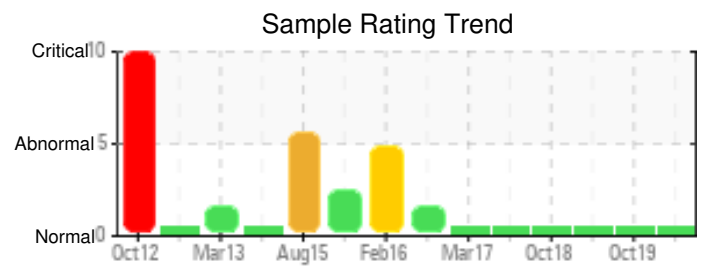
Customer: PTRHTF20109	System Information	Sample Information
Crew Energy Septimus Plant 12-27-81-18W6 8043-100TH AVENUE FORT ST.JOHN, BC V1J 1W2 Canada Attn: Dease Devine Tel: (250)262-1957 E-Mail: dease.devine@crewenergy.com	System Volume: 18000 ltr Bulk Operating Temp: 365F / 185C Heating Source: Blanket: Fluid: ESSO TERESSO ISO 32 Make: NATCO	Lab No: 02382048 Analyst: Bill Quesnel CLS,OMA II,MLA-III,LLA-I Sample Date: 10/05/20 Received Date: 10/19/20 Completed: 11/18/20 Bill Quesnel CLS,OMA II,MLA-III,LLA-I

Recommendation: Resample at the next service interval to monitor (one year).

Comments: {not applicable} There is no indication of any contamination in the fluid. The condition of the fluid is acceptable for the time in service.

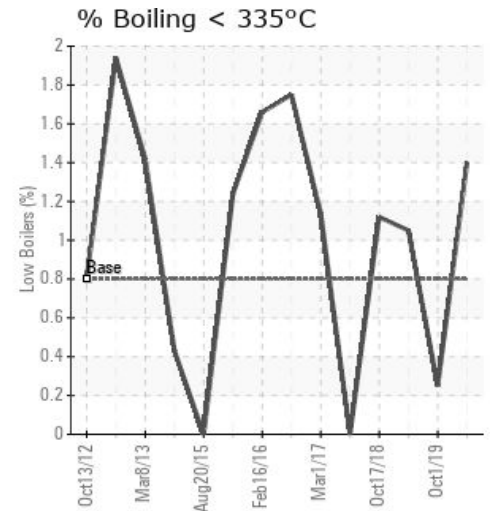
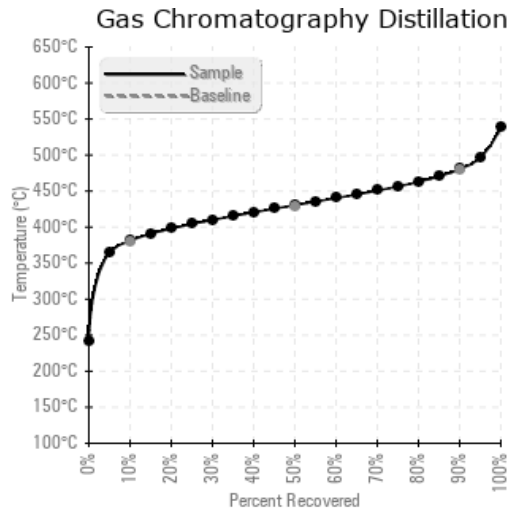
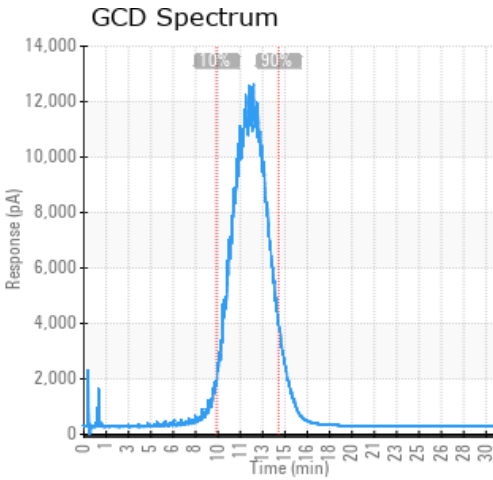
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
10/05/20	10/19/20	33m		442 / 228	9.2	27.1	0.13	0.150	718 / 381	807 / 430	897 / 480	1.40
10/01/19	10/07/19	33m		430 / 221	3.1	32.9	0.273	0.098	730 / 388	821 / 439	915 / 491	0.25
04/09/19	06/05/19	27m	PUMP DISCHARGE	421 / 216	24.5	32.7	0.163	0.047	710 / 377	801 / 427	893 / 479	1.05
10/17/18	11/07/18	21m		424 / 218	10.5	32.8	0.101	0.225	709 / 376	801 / 427	892 / 478	1.12
03/11/18	03/12/18	16m		424 / 218	1.2	32.4	0.108	0.214	716 / 380	784 / 418	878 / 470	0.00
Baseline Data				399 / 204		32			716 / 380	802 / 428	896 / 480	0.8





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	
10/05/20	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10/01/19	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04/09/19	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/17/18	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
03/11/18	5	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

10/01/19	Sample results indicate that the fluid is suitable for continued service. However, the data is showing that Oxidation degradation is increasing as evidenced by the rising Acid Number: last sample it was at 0.163 and is now at 0.273. Oxidation may have also contributed to the fluid's increased 10% and 90% GCD temperatures and increased flash point and reduced %<335C low boiling vapors. Please note that fluid sweetening would be advised when the fluid's Acid Number approaches 0.4. Please ensure that blanket gas is operational so the fluid is not exposed to oxygen. Please re-sample in 6 months once blanket gas has been proven to be in operation.
04/09/19	The fluid is in a good condition and suitable for further use. Please ensure blanket gas is on at all times as this fluid (turbine oil) is sensitive to oxidation at high temperature. Please re-sample in 6 months.
10/17/18	Please note that distillation references are unavailable for this fluid. Sample results appear to indicate that the fluid is suitable for continued service. Re-sample in 12 months
03/11/18	Resample at the next service interval to monitor. The water content is negligible. There is no indication of any contamination in the fluid. The AN level is acceptable for this fluid. The condition of the fluid is suitable for further service.