

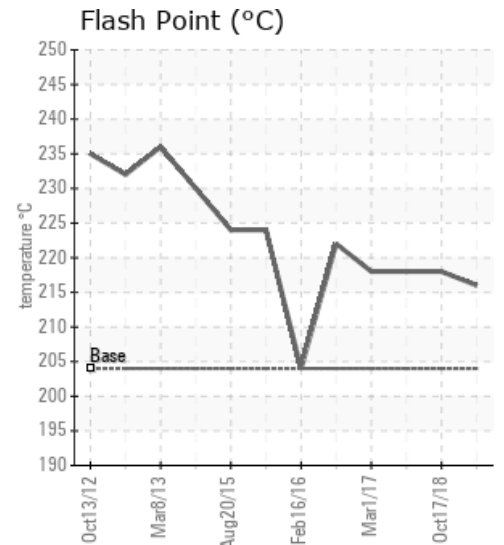
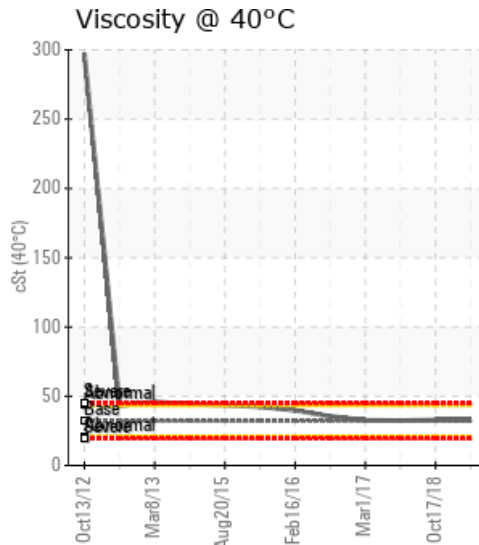
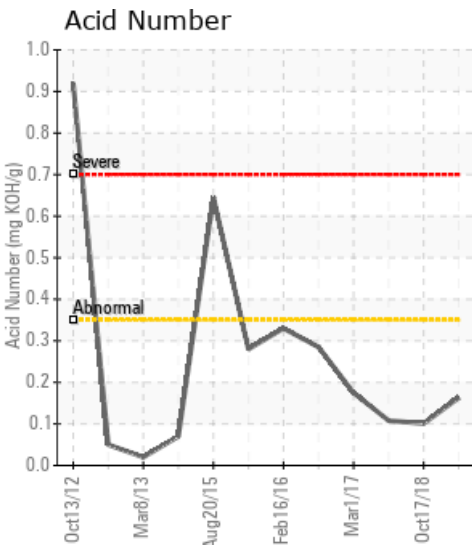
[DEASE DEVINE / LSD 12-27-81-18W6] CREW ENERGY SEPTIMUS PLANT SK-500

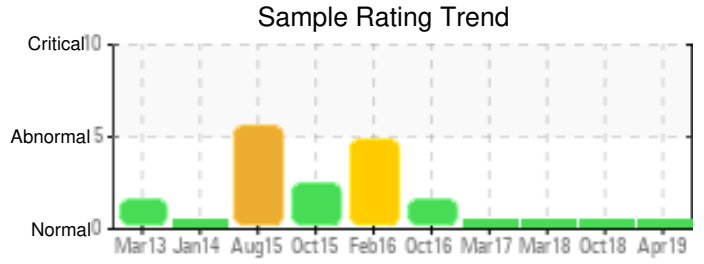
Customer: PTRHTF20109	System Information	Sample Information
Crew Energy Septimus Plant 12-27-81-18W6 8043-100TH AVENUE FORT ST.JOHN, BC V1J 1W2 Canada Attn: Dease Devine Tel: (250)262-1957 E-Mail: dease.devine@crewenergy.com	System Volume: 18000 ltr Bulk Operating Temp: 365F / 185C Heating Source: Blanket: Fluid: ESSO TERESSO ISO 32 Make: NATCO	Lab No: 02289104 Analyst: Peter Hartevelde Sample Date: 04/09/19 Received Date: 06/05/19 Completed: 07/12/19

Recommendation: 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.

Comments:

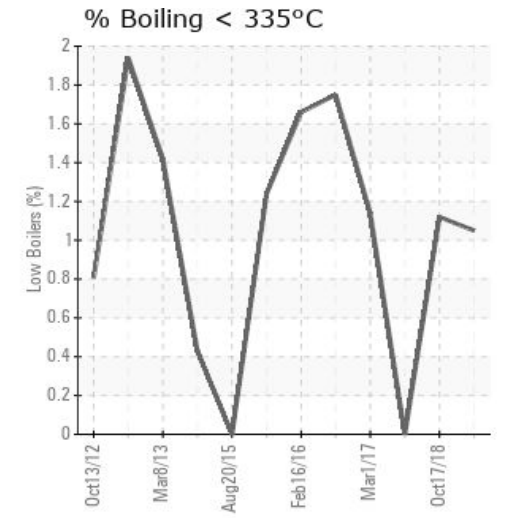
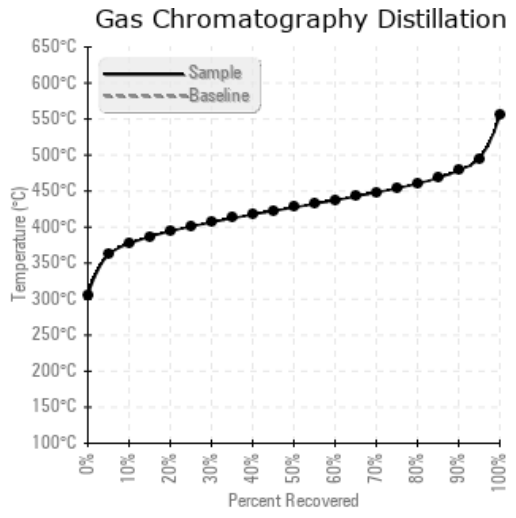
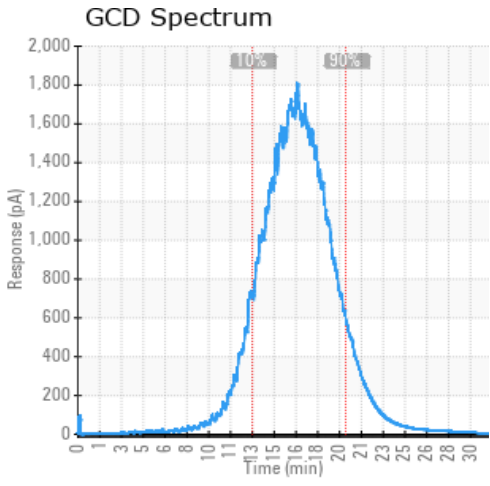
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
04/09/19	06/05/19	27m	PUMP DISCHARGE	421 / 216	24.5	32.7	0.163	0.047	710 / 377	801 / 427	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
03/01/17	03/10/17	5m	PUMP DISCHARGE	424 / 218	12.2	32.6	0.175	0.090	715 / 380	807 / 430	905 / 485	1.14
10/14/16	03/10/17	8m		432 / 222	249.3	35.5	0.285	0.224	720 / 382	819 / 437	924 / 495	1.75
02/16/16	02/25/16	0m	SK500	399 / 204	21.1	39.8	0.33	0.579	733 / 390	842 / 450	954 / 512	1.66
Baseline Data				399 / 204		32						





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
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
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
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
03/01/17	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/14/16	18	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
02/16/16	11	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	
10/17/18	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.
03/01/17	Resample at the next service interval to monitor. The water content is negligible. There is no indication of any contamination in the component. The AN level is acceptable for this fluid. The condition of the fluid is suitable for further service.
10/14/16	Resample at the next service interval to monitor. The water content is negligible. There is no indication of any contamination in the component. (GCD) 90% Distillation Point is marginally high. (GCD) 10% Distillation Point is marginally low. The AN level is acceptable for this fluid. The condition of the fluid is suitable for further service.
02/16/16	The GCD @90% indicating some heavier ends in the sample. Suspect some sludging is starting to form in the sample likely due to thermal cracking. This would also cause the increase in Pentane Insolubles. Still advising that you continue to monitor by sampling in 6 months time. Pentane Insolubles levels are severely high. (GCD) 90% Distillation Point is marginally high.

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