

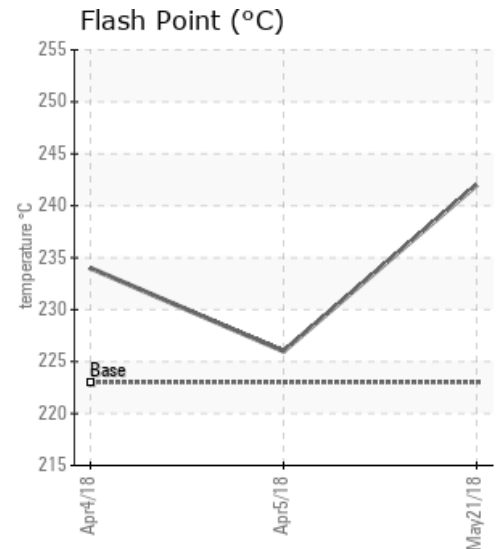
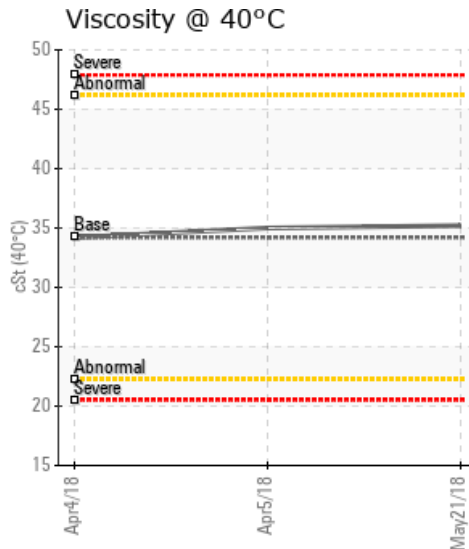
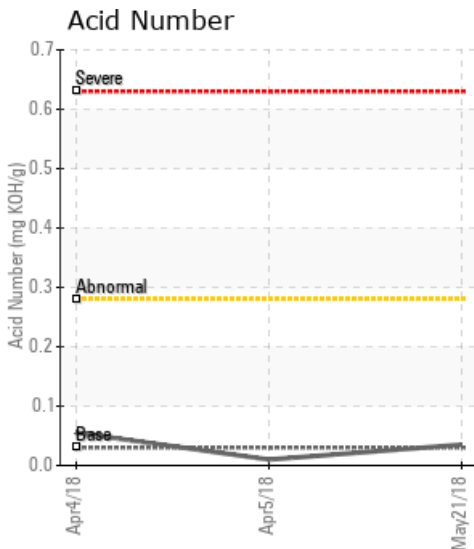
MURPHY OIL CORP 1-12-64-25-W5M

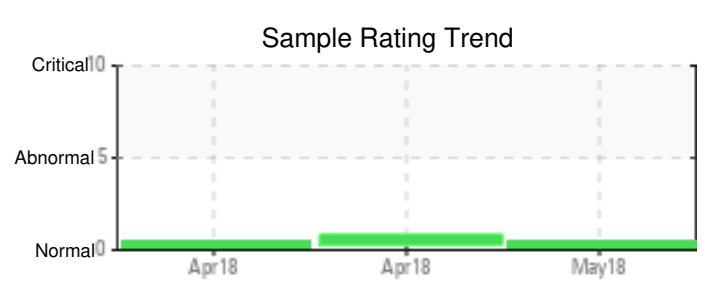
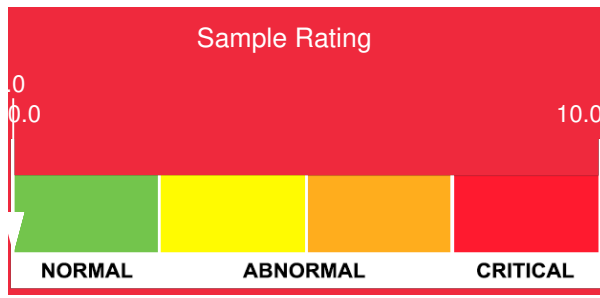
Customer: PTRHTF20046	System Information	Sample Information
QUADRA CHEMICALS 12925 146TH STREET EDMONTON, AB T5L 2H6 CANADA Attn: Ada Aponte Tel: E-Mail: Ada_Aponte@quadra.ca	System Volume: 20000 ltr Bulk Operating Temp: 428F / 220C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: PROFIRE/ALCO	Lab No: 02217460 Analyst: Peter Harteveld Sample Date: 05/21/18 Received Date: 05/22/18 Completed: 05/25/18 To discuss this report contact Peter Harteveld at (780)967-4234

Recommendation: Due to not using the same system ID as previous this analysis had to be moved in order to restore trending of the fluid. Comments have not changed and are: Wear rates are normal, water content is negligible, there is no indication of contamination, the AN is acceptable. The fluid is suitable for further use. Please re-sample in 6 months.

Comments: All component wear rates are normal. The water content is negligible. There is no indication of any contamination in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

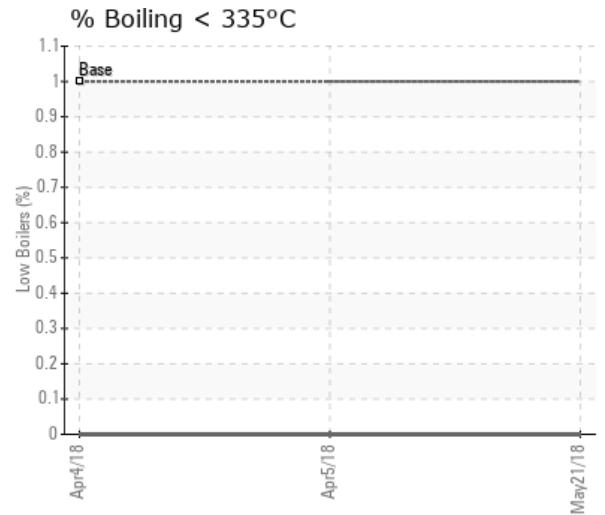
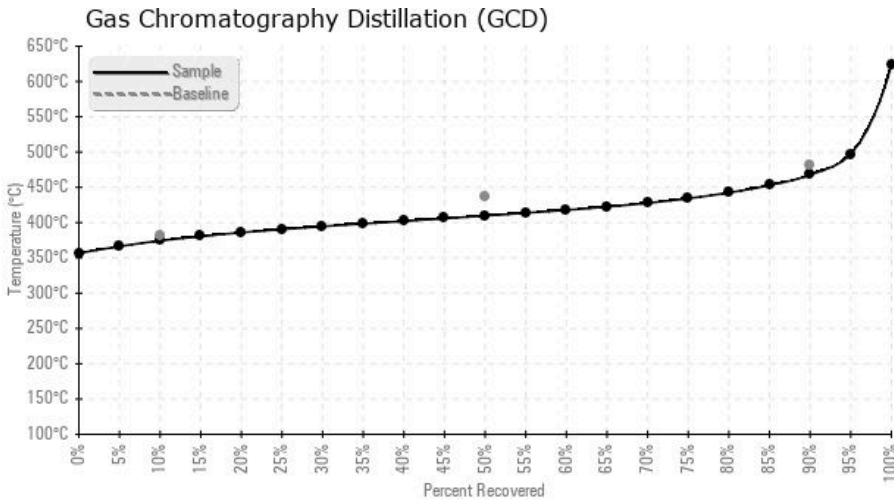
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
05/21/18	05/22/18	0m		468 / 242	15.4	35.2	0.035	0.028	706 / 374	769 / 410	874 / 468	0.00
04/05/18	05/08/18	2m	MURPHY	439 / 226	67.1	35.0	0.01	0.018	713 / 379	787 / 420	930 / 499	0.00
04/04/18	04/13/18	2m		453 / 234	536.9	34.2	0.055	0.017	706 / 374	786 / 419	894 / 479	0.00
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		
05/21/18	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	
04/05/18	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04/04/18	1	0	0	0	0	0	0	1	0	0	1	6	0	0	0	0	0	0	2	0	1	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	
04/05/18	The fluid is in good condition and suitable for use. Water content is low. (67 ppm.)90% GCD temperature is high. This is not a problem for the fluid in service. Customer will be contacted by phone as a follow-up call after the conversation of this morning (May 17). System is non-circulated and will be started today. (GCD) 90% Distillation Point is abnormally high.
04/04/18	Water content is slightly high. Recommended to boil off the water by venting steam to atmosphere. The Fluid is in a good condition and suitable for further use.

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