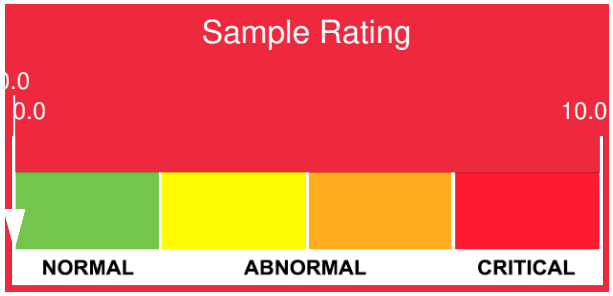
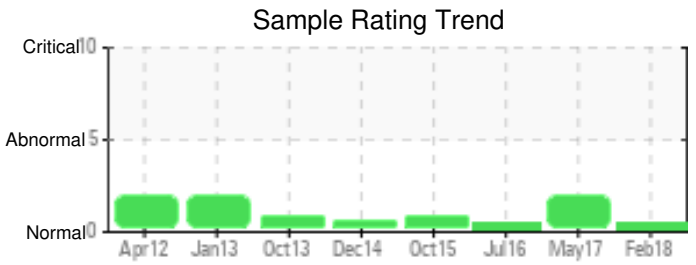




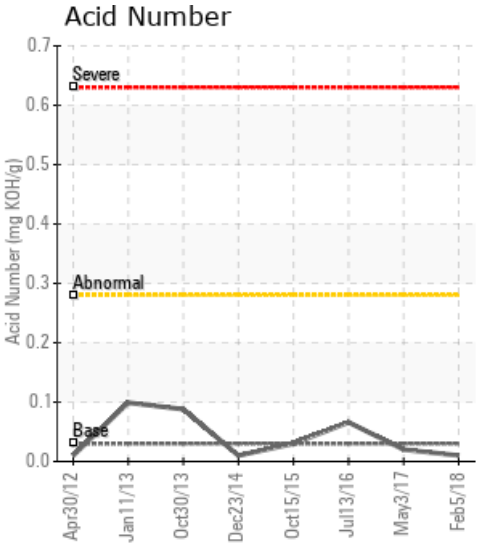
CLEAVER BROOKS

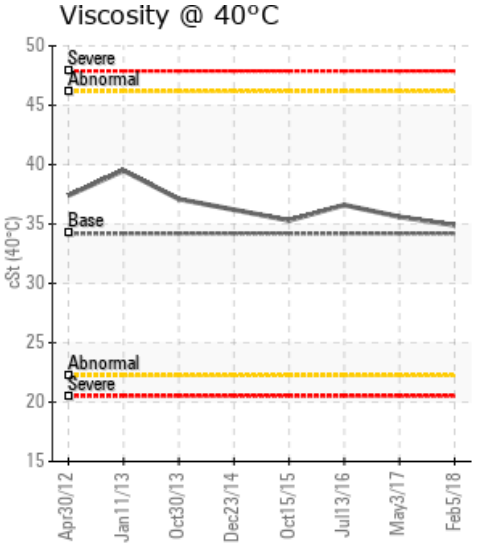
Customer: PTRHTF30020	System Information	Sample Information
IKO INDUSTRIES HAWKESBURY 1451 SPENCE ROAD HI-PARTS-HAWK YARD HAWKESBURY, ON K6A 3T4 Canada Attn: FLORENTIN TOPA Tel: (613)632-8581 E-Mail: florentin.topa@iko.com	System Volume: 10000 ltr Bulk Operating Temp: 491F / 255C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: CLEAVER BROOKS	Lab No: 02199994 Analyst: Pierre Castagne Sample Date: 02/05/18 Received Date: 02/22/18 Completed: 03/08/18 To discuss this report contact Pierre Castagne at 450-981-0693

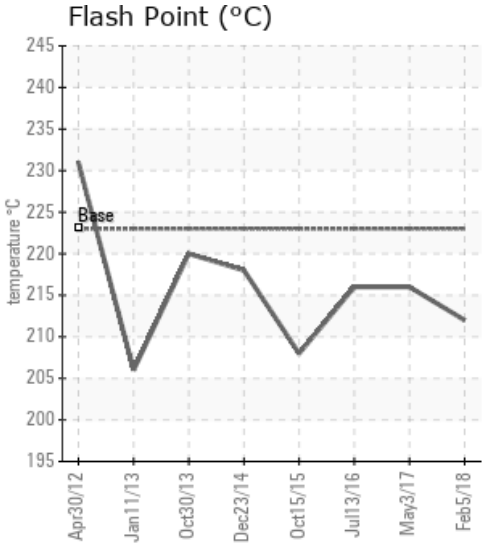
Recommendation: High boilers (GCD @ 90%) increase viscosity, as a result carbon deposit settle in low flow/disturbance areas and foul heat exchange surfaces. Looking at the curve, it appears that a low viscosity oil mixture has occured.

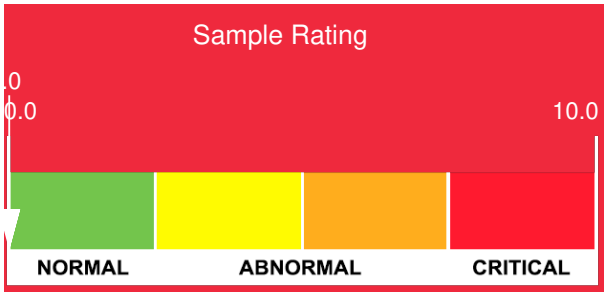
Comments:

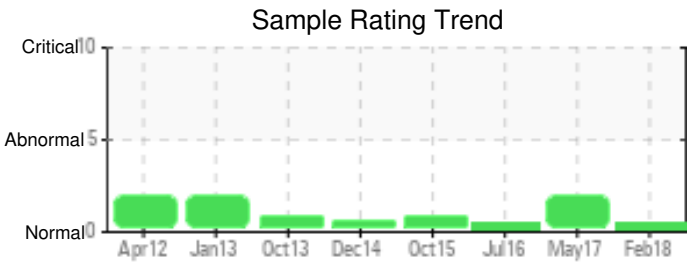
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
02/05/18	02/22/18	10y		414 / 212	6.1	34.9	0.01	0.024	704 / 373	809 / 431	915 / 491	2.74
05/03/17	05/11/17	10y	HOT OIL SYSTEM	421 / 216	11.7	35.6	0.02	0.047	713 / 379	814 / 434	944 / 507	1.23
07/13/16	07/18/16	10y	HOT OIL SYSTEM	421 / 216	0.00	36.6	0.066	0.045	720 / 382	803 / 428	901 / 483	0.00
10/15/15	10/28/15	10y	HOT OIL SYSTEM	406 / 208	0.00	35.3	0.03	0.043	711 / 377	813 / 434	931 / 499	1.94
12/23/14	12/24/14	10y	CLEAR BROOKS OIL HEA	424 / 218	7.6	36.2	0.01	0.055	716 / 380	818 / 437	924 / 495	1.13
10/30/13	11/06/13	10y	AT BLEEDER VALVE	428 / 220	42.4	37.1	0.088	0.097	712 / 378	812 / 433	918 / 492	1.45
Baseline Data				433 / 223		34.2	0.03		720 / 382	817 / 436	900 / 482	1.00





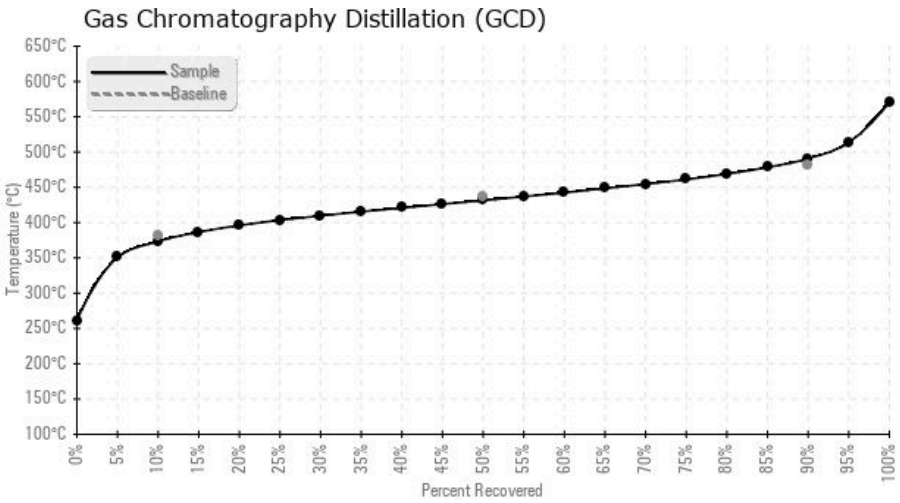


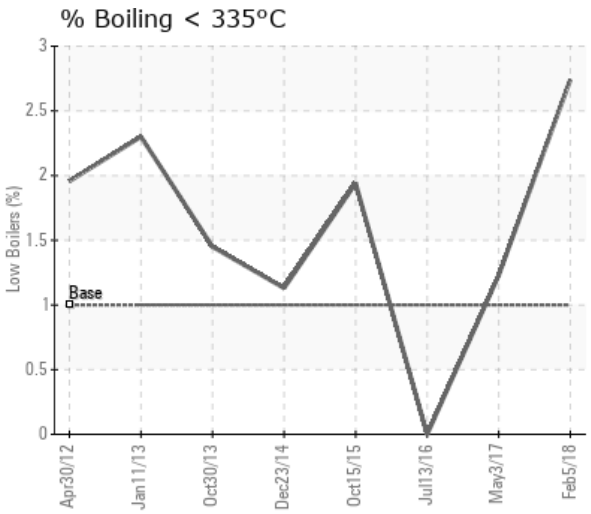




Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
02/05/18	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05/03/17	5	0	0	0	0	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	3	0	0	0
07/13/16	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
10/15/15	3	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0
12/23/14	4	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
10/30/13	11	0	0	1	0	0	0	23	0	0	3	2	0	0	0	0	1	0	0	0	23	0	2	0
Baseline Data			0	0						0			0	0					0				0	

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





Historical Comments

05/03/17	The Low boilers GCD @10% are within specification (this could be the result of topping-up the oil) although the flash point is lower than the Petro-Therm oil specification (216°C versus 225°C specification), this suggests some oil craking is taking place. The High boilers GCD @ 90% are higher than the specification; this normally causes the viscosity of the oil to increase and carbon deposits. (GCD) 90% Distillation Point is severely high.
07/13/16	Sample is OK for continuous use, Re-sample at appropriate sample date
10/15/15	The oil is in good condition and can stay in service until next sampling. We recommend a new sample in 12 months. GCD 90% Distillation Point is abnormally high and will be monitored closely on any future samples. (GCD) 90% Distillation Point is abnormally high.
12/23/14	The oil is in good condition and can stay in service until next sampling. We recommend a new sample in 12 months. (GCD) 90% Distillation Point is marginally high.
10/30/13	Everything looks normal. Keep up the 9 months sampling frequency. (GCD) 90% Distillation Point is abnormally high.