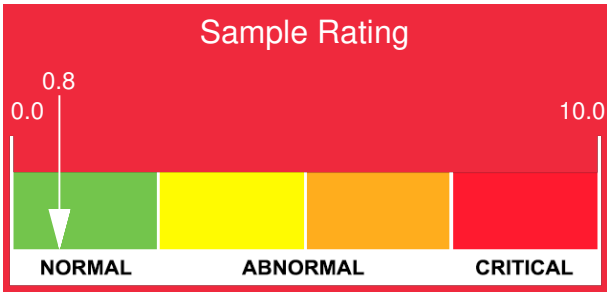
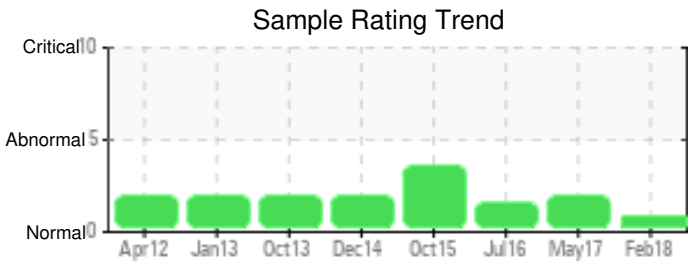




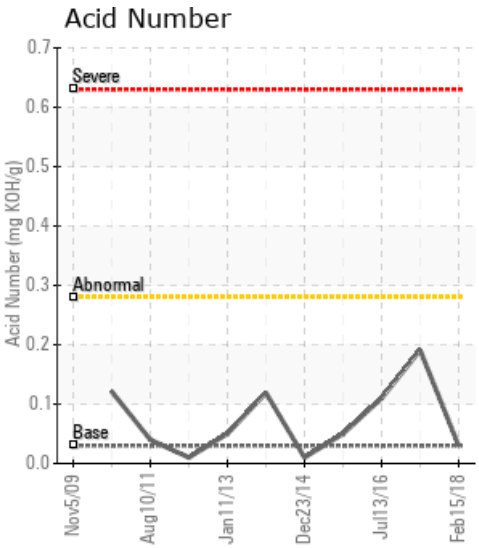
API BOILER

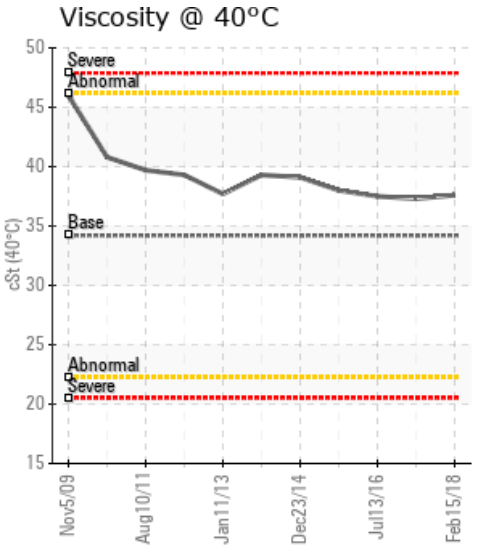
Customer: PTRHTF30020	System Information	Sample Information
IKO INDUSTRIES HAWKESBURY 1451 SPENCE ROAD HI-PARTS-HAWK YARD HAWKESBURY, ON K6A 3T4 Canada Attn: FLORENTIN TOPA Tel: (613)632-8581 E-Mail: florentin.topa@iko.com	System Volume: 25000 ltr Bulk Operating Temp: 518F / 270C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: INDUSTRIAL	Lab No: 02199993 Analyst: Pierre Castagne Sample Date: 02/15/18 Received Date: 02/22/18 Completed: 03/08/18 To discuss this report contact Pierre Castagne at 450-981-0693

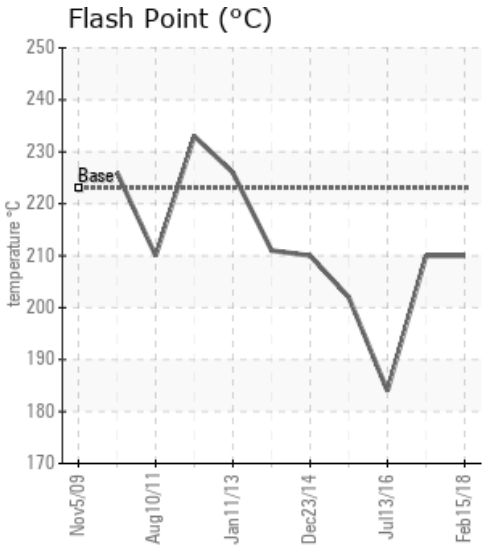
Recommendation: High boilers (GCD @90%), increase oil viscosity, and carbon deposit. Deposit, settle in low flow/disturbance areas and foul heat exchange surfaces. Looking at the curves, it appears that a mixture of another oil with lower viscosity could have been introduce in he system.

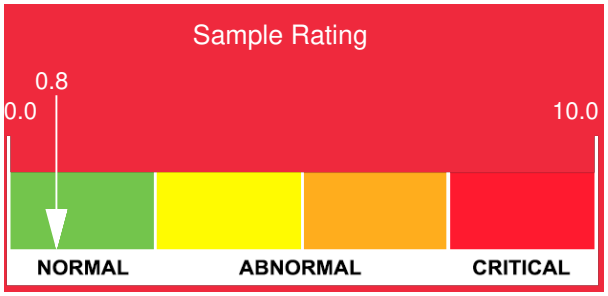
Comments: (GCD) 90% Distillation Point is abnormally high.

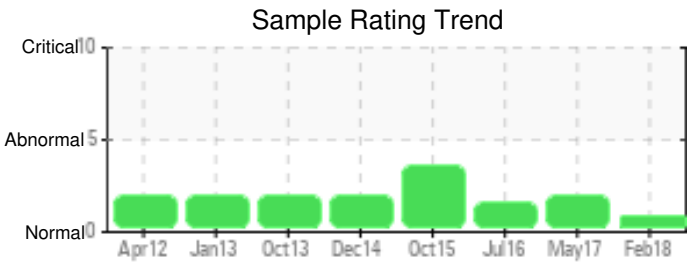
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
02/15/18	02/22/18	10y		410 / 210	6.8	37.6	0.03	0.075	693 / 367	809 / 432	931 / 500	4.24
05/03/17	05/11/17	10y	HOT OIL BOILER	410 / 210	8.8	37.3	0.191	0.064	714 / 379	820 / 438	976 / 525	1.23
07/13/16	07/18/16	10y	API HOT OIL HEATER	363 / 184	0.00	37.5	0.110	0.065	712 / 378	800 / 427	925 / 496	0.00
10/15/15	10/28/15	10y	API HOT OIL HEATER	396 / 202	0.3	38.0	0.05	0.943	705 / 374	814 / 434	948 / 509	2.29
12/23/14	12/24/14	10y	API HOT OIL HEATER	410 / 210	4.0	39.1	0.01	0.072	711 / 377	823 / 439	952 / 511	1.46
10/30/13	11/06/13	15y	AT BLEEDER VALVE	412 / 211	37.5	39.3	0.119	0.068	709 / 376	819 / 437	948 / 509	2.03
Baseline Data				433 / 223		34.2	0.03		720 / 382	817 / 436	900 / 482	1.00





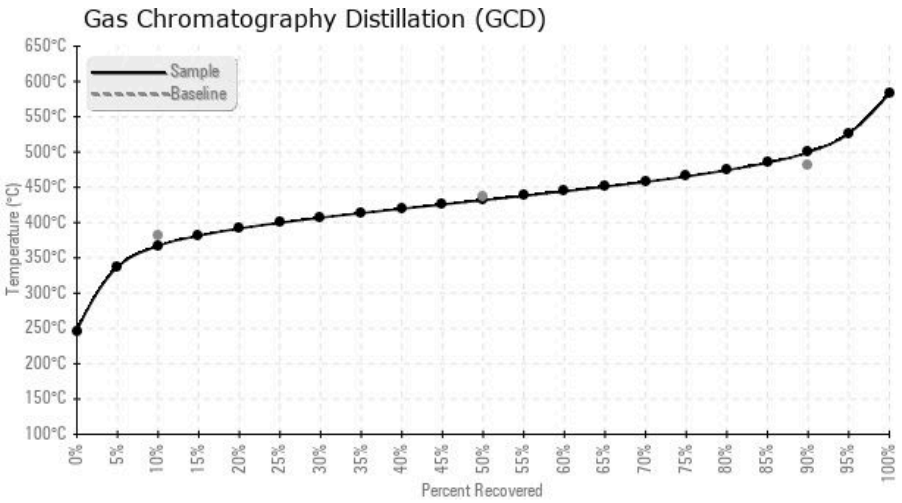


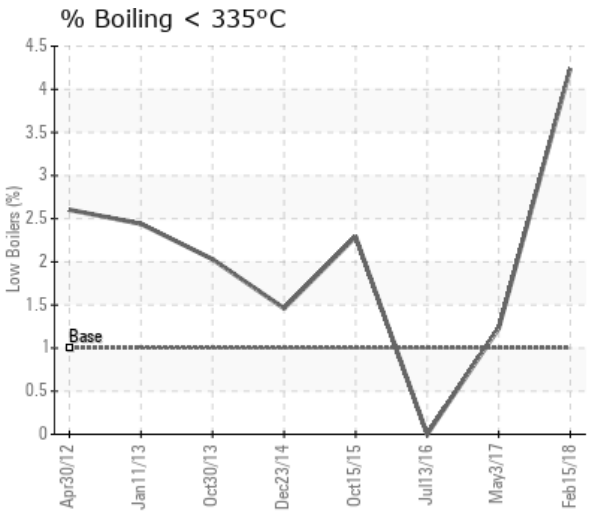




Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
02/15/18	18	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	3
05/03/17	13	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
07/13/16	16	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	2
10/15/15	26	0	0	0	2	0	0	1	0	0	1	1	0	0	0	0	1	0	0	0	1	0	2	2
12/23/14	1	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	4
10/30/13	4	0	0	0	1	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	2	0	1	9
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 sample has trace of Vanadium, 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 (210°C versus 225°C specification),this suggests some oil craking is taking place. The High boilers GCD @ 90% are higher than the specification (524.6 versus 482 specifications); this normally causes the viscosity of the oil to increase and carbon deposits. (GCD) 90% Distillation Point is severely high.
07/13/16	(GCD) 90% Distillation Point is marginally high. COC Flash Point is significantly low. (GCD) 90% Distillation Point is marginally high. COC Flash Point is marginally low.
10/15/15	The oil is in good condition and can stay in service until next sample. The GDC 90% Distillation Point is abnormally high. Some high boilers are present in the oil. Oxidation should be monitored closely over the next set of samples. We recommend to submit a new sample in 12 months Pentane Insolubles levels are severely high. (GCD) 90% Distillation Point is severely high.
12/23/14	The oil is in good condition and can stay in service until next sample. The GDC 90% Distillation POint is abnormally high. Some high boilers are present in the oil. Oxidation should be monitored closely over the next set of samples. We recommend to sample in the next 12 months. (GCD) 90% Distillation Point is severely high.
10/30/13	Everything looks normal. Keep up the 9 months sampling frequency. (GCD) 90% Distillation Point is severely high.