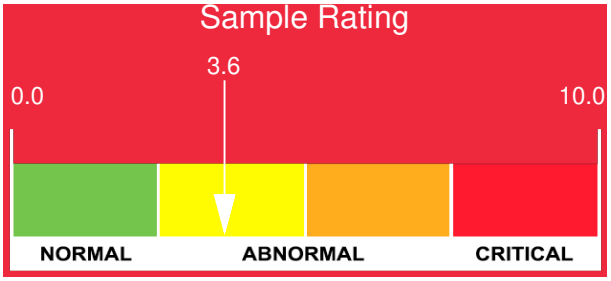
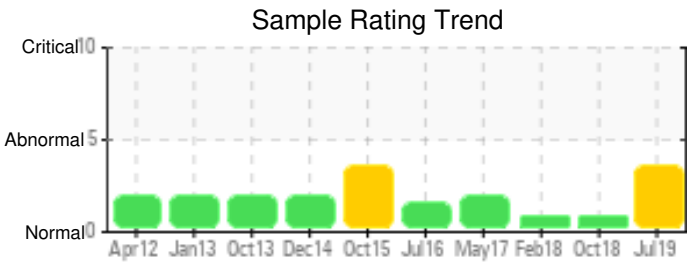




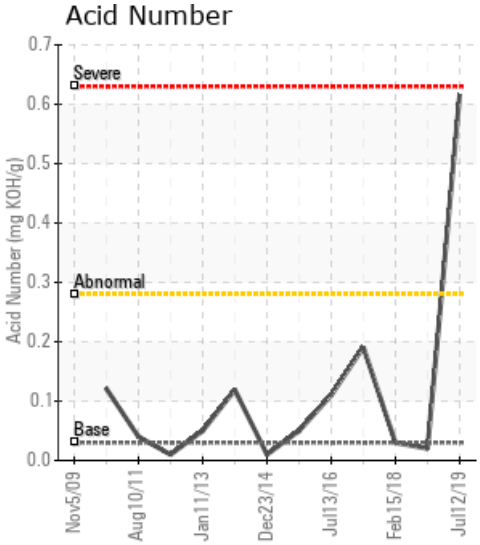
API BOILER

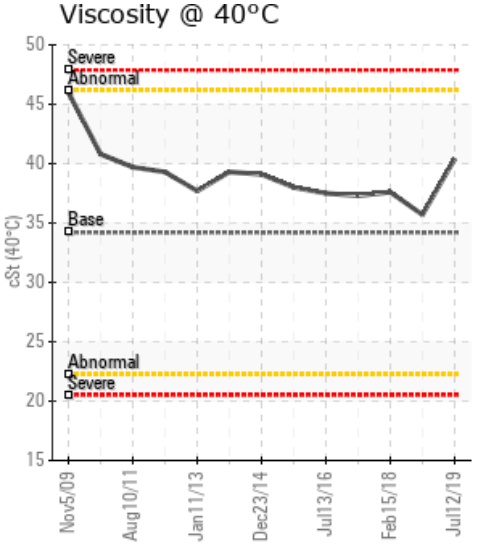
Customer: PTRHTF30020	System Information	Sample Information
IKO INDUSTRIES HAWKESBURY 1451 SPENCE ROAD HI-PARTS-HAWK YARD HAWKESBURY, ON K6A 3T4 Canada Attn: Roy Paquette Tel: (613)632-8581 E-Mail: roy.paquette@iko.com	System Volume: 25000 ltr Bulk Operating Temp: 518F / 270C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: INDUSTRIAL	Lab No: 02297698 Analyst: Pierre Castagne Sample Date: 07/12/19 Received Date: 07/18/19 Completed: 07/22/19 Pierre Castagne pierre.castagne@petrocanadalsp.com

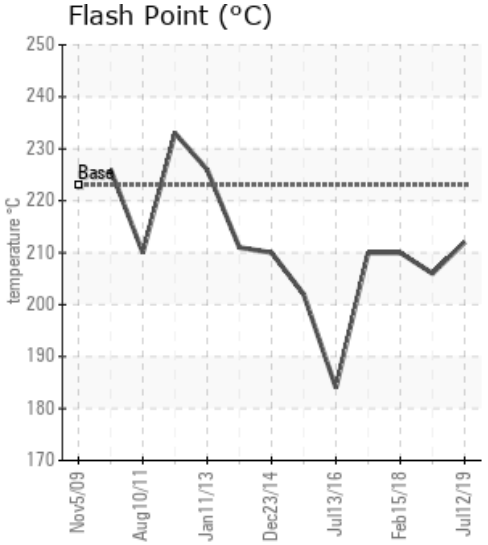
Recommendation: You have trrace of asphalt in the sample, carbon buildup (GCD @90%) are high, the oil is oxydising, viscosity is closer to ISO 46, Pentane Insolubles are high.Recommendation: The oil as reach t's usefull life, recommend draining the system, cleaning and flushing the system and refill with PetroTherm.

Comments: Pentane Insolubles levels are severely high. Acid Number (AN) is abnormally high. (GCD) 90% Distillation Point is abnormally high.

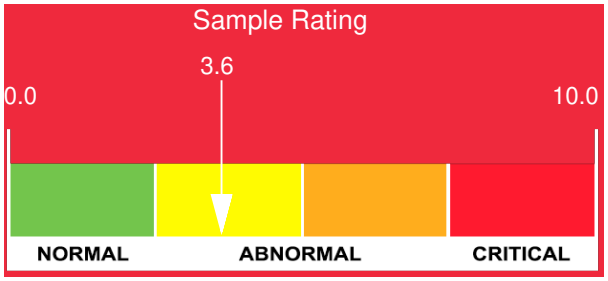
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
07/12/19	07/18/19	10y		414 / 212	41.0	40.4	0.616	0.600	711 / 377	812 / 433	929 / 498	0.93
10/15/18	10/18/18	10y		403 / 206	16.7	35.7	0.02	0.035	725 / 385	820 / 438	932 / 500	0.00
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
Baseline Data				433 / 223		34.2	0.03		720 / 382	817 / 436	900 / 482	1.00

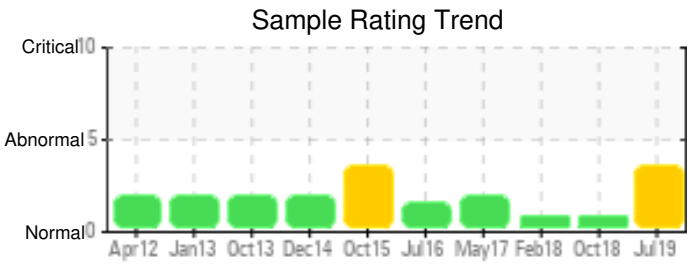






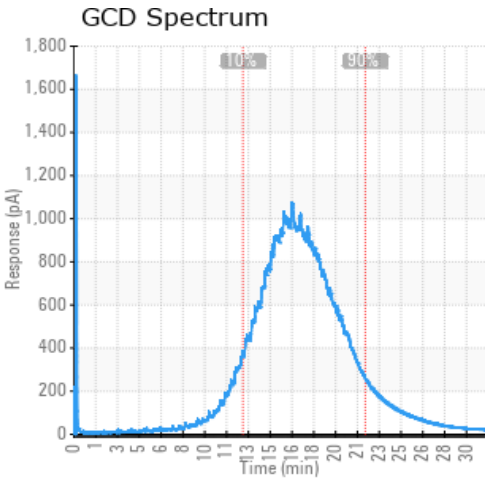
PETRO-CANADA LUBRICANTS

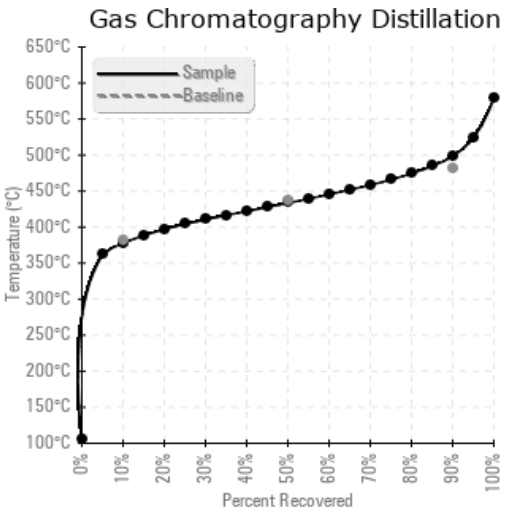


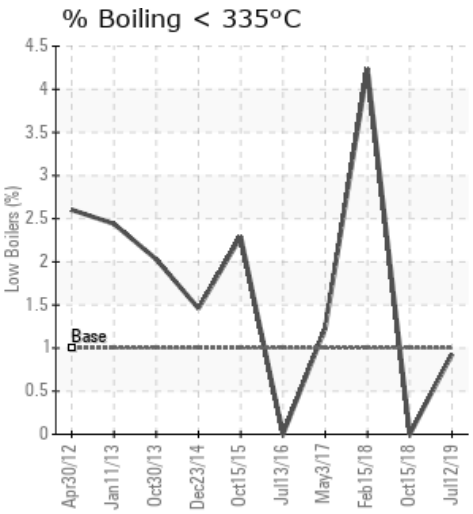


Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
07/12/19	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
10/15/18	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02/15/18	18	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0	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	0	2
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

10/15/18	Les fractions Lourdes (GCD @90%) sont élevées, les fractions lourdes augmentent la viscosité, favorise les dépôts de carbone. (GCD) 90% Distillation Point is abnormally high.
02/15/18	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. (GCD) 90% Distillation Point is abnormally high.
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.

