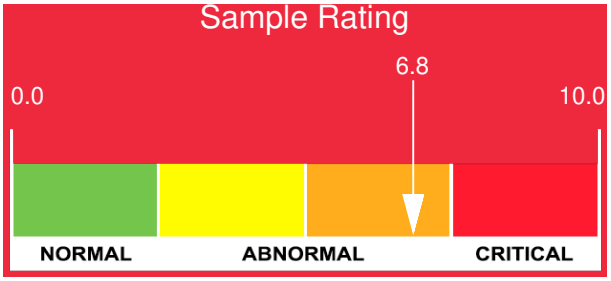
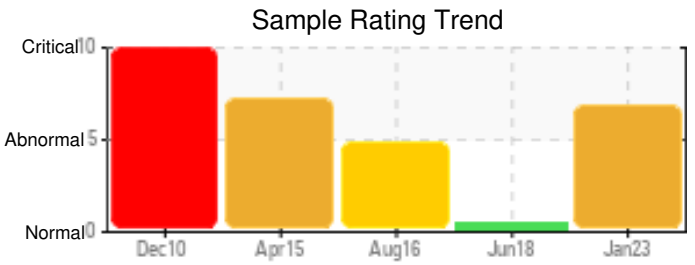




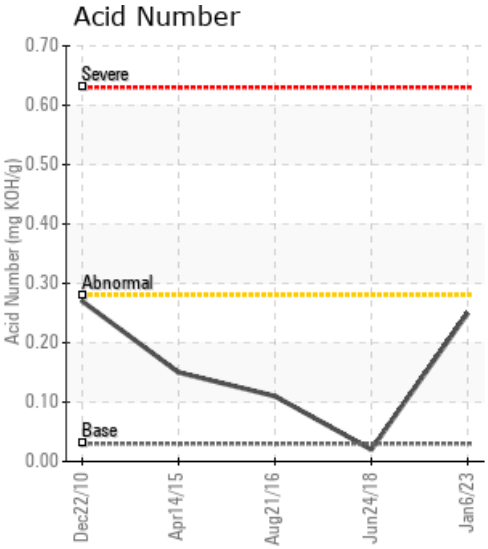
ATLANTIC STATES

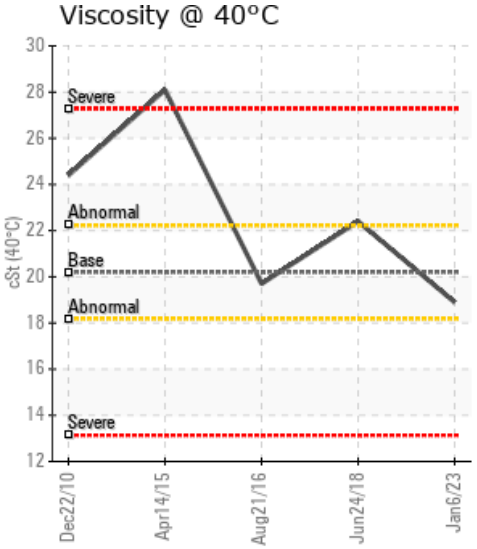
Customer: PTRHTF10041	System Information	Sample Information
KUTTNER LLC. 211 N FRANKLIN ST PORT WASHINGTON, WI 53074 USA Attn: DAVID ZINKY Tel: (262)284-4483 E-Mail: d.zinky@kuttnerna.com	System Volume: 7000 gal Bulk Operating Temp: 540F / 282C Heating Source: Blanket: Fluid: MOBIL MOBILTHERM 603 Make: WUERZ	Lab No: 02543072 Analyst: Yvette Trzcinski Sample Date: 01/06/23 Received Date: 03/03/23 Completed: 03/30/23 Yvette Trzcinski yvette.trzcinski@HFSinclair.com

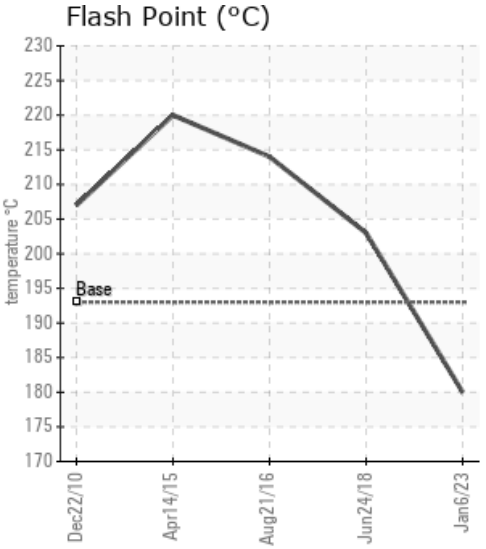
Recommendation: The results appear to show thermal cracking of the fluid which is creating low boilers which could lead to cavitation of the pumps as well as the lowering of the GCD boiling point at 90%. Consider venting the system to remove the low boilers before they cause issues with pump cavitation, as well as, consider sweetening the system by adding at least 30% of new heat transfer fluid to the system

Comments: (GCD) % < 335°C is severely high. (GCD) 90% Distillation Point is severely low. (GCD) 10% Distillation Point is abnormally low.

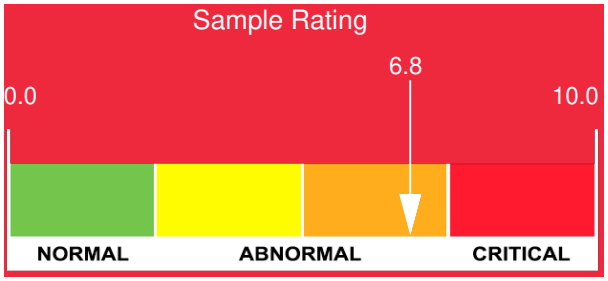
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
01/06/23	03/03/23	60.0m		356 / 180	31.2	18.9	0.25	0.165	604 / 318	679 / 359	765 / 407	21.59
06/24/18	08/22/18	0.0m	PUMP INLET	397 / 203	80.7	22.4	0.02	0.058	675 / 357	764 / 407	845 / 452	2.72
08/21/16	09/19/16	18.0m	PUMP INLET	417 / 214	130.5	19.7	0.11	0.092	710 / 376	791 / 421	877 / 469	0.37
04/14/15	06/05/15	2.0m	PUMP INLET	428 / 220	199.7	28.1	0.15	0.061	709 / 376	791 / 422	870 / 465	0.45
12/22/10	01/10/11		PUMP INLET	405 / 207	430	24.4	0.27	0.070	704 / 374	774 / 412	847 / 453	0.301
Baseline Data				379 / 193		20.2	0.03		676 / 358		858 / 459	2.6

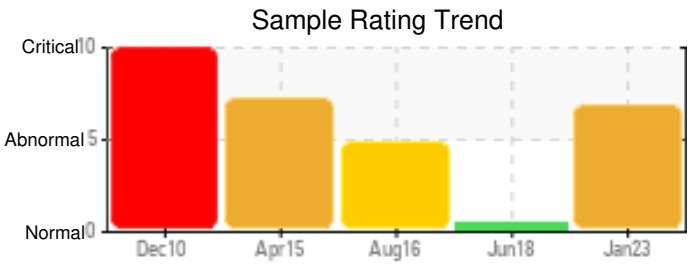






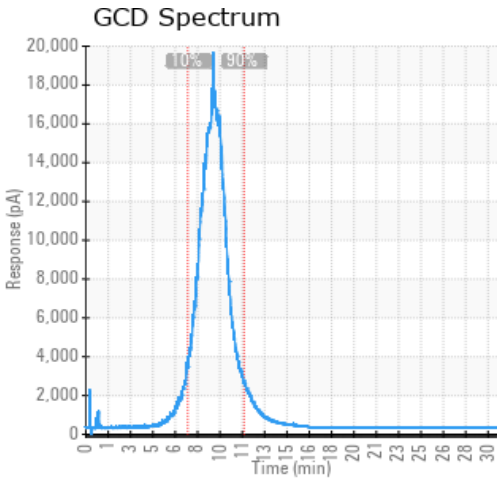
PETRO-CANADA LUBRICANTS

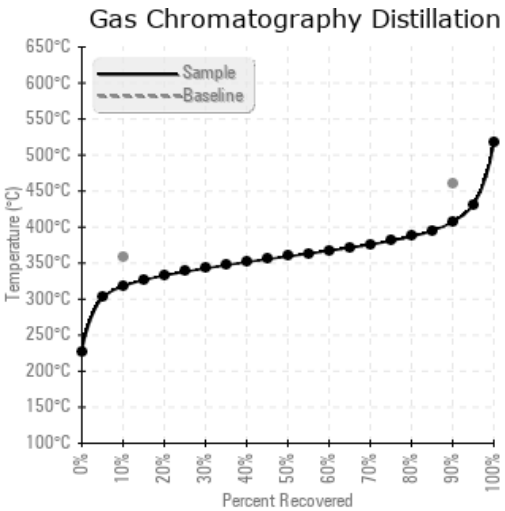


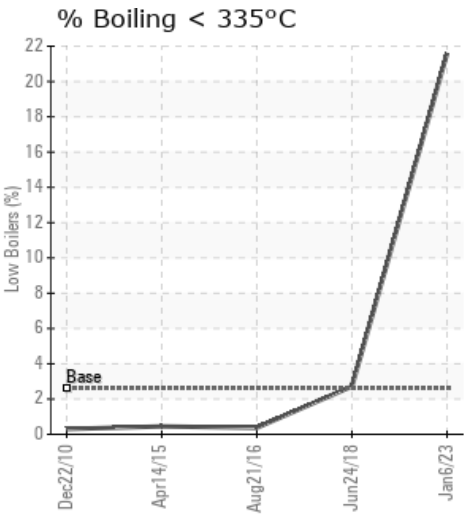


Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
01/06/23	32	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
06/24/18	15	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	15	0	0	1
08/21/16	4	0	0	0	0	0	0	0	0	0	0	37	0	0	0	0	0	0	0	0	57	0	2	0
04/14/15	19	0	0	0	0	0	1	0	0	0	0	45	0	0	0	0	0	0	0	0	64	0	2	1
12/22/10	11	0	0	0	0	0	0	0	0	0	0	88	0	0	0	0	0	0	0	0	89	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

06/24/18	No reference sample. Fluid changed 01/28/2018 viscosity, acid number, flash point, insolubles and distillation at acceptable levels resample at normal intervals
08/21/16	No reference fluid available. Viscosity at 40C appears low compared to previous samples. High Sodium and calcium contamination. TAN is acceptable. COC Flash Point is severely high. Calcium ppm levels are severely high. Visc @ 40°C is severely low. Sodium ppm levels are abnormally high.
04/14/15	Baseline and typical values not available. Product unknown so cannot make a complete diagnosis. TAN, Flash Pt, Insolubles, H2O, Fe, GCD all appear good. Na and Ca contamination. Sodium ppm levels are severely high. Calcium ppm levels are severely high.
12/22/10	The oil has some moisture in it, not dramatic but enough to be heard and cause some issues in some systems depending on the design. The oil also contains minerals like sodium and calcium, maybe salt water. Please try to prevent water ingression. Re-sample in 6-9 months.