

Analysis Report

Component Information

Machine Type: Turbine Gearbox Sump Size: 106
Lubricant: MOBIL/SHC XMP 320
Machine MFG: SUZLON
Machine MOD: Winery PEAB 4456.6

Sample Information

Received: 11/26/2018
Report: 11/26/2018
Sample No.: 1757 - 1 - 43 - 22
Analyst/Test: DR / AFDATPCKF

Customer Information

PROBLEMS
High Water Content
Excessive Wear

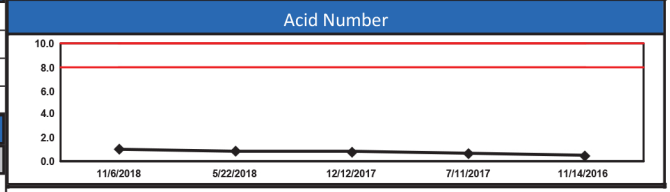
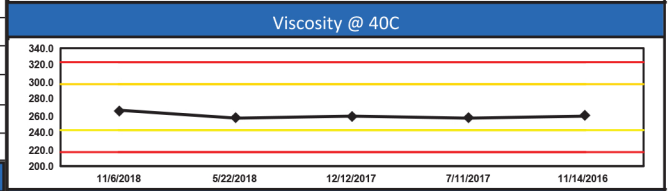
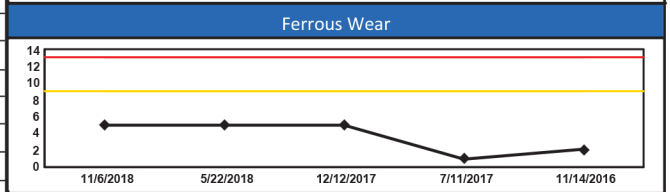
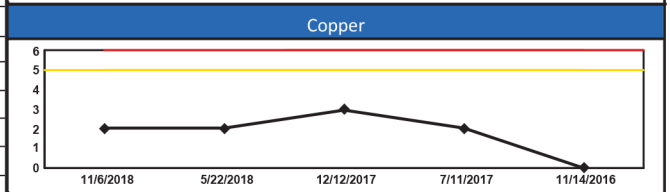
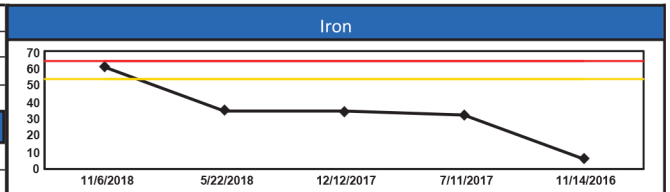
COMMENTS The level of water contamination (0.2457%) is excessive and considered abnormal. Check for sources of water ingress and repair as necessary. The high level of wear (iron) suggests that an abnormal wear mode exists. Check this gearbox for excessive noise, vibration or high temperature.

CUSTOMER NOTES

Mach Hours: 72550 *

Date Sampled	NEW OIL	11/6/2018	5/22/2018	12/12/2017	7/11/2017	11/14/2016
Lab No		2391062	2255732	2142421	2005820	1860002
Machine / Lube Cond.		M / C	N / C	N / C	M / C	N / C
Machine Hours		72550	69354	66949	64742	47043

ELEMENTAL SPECTROSCOPY (ppm) ASTM D5185 Mod (-) indicates below detection limit						
Wear Metals	Iron	61	35	34	32	6
	Copper	2	2	3	2	-
	Lead	-	-	-	-	-
	Aluminum	-	-	-	-	-
	Tin	-	-	-	-	-
	Nickel	-	-	-	-	-
	Chromium	-	-	-	-	-
	Titanium	-	-	-	-	-
	Vanadium	-	-	-	-	-
	Silver	-	-	-	-	-
Additives	Calcium	-	-	-	-	-
	Magnesium	2	4	4	4	4
	Phosphorus	433	529	465	579	543
	Zinc	18	15	15	16	13
	Barium	-	-	-	-	-
Contaminants	Molybdenum	3	5	5	6	5
	Silicon	2	-	2	3	3
	Boron	-	-	-	-	-
	Lithium	-	-	-	-	-
	Sodium	-	-	-	-	-
Potassium	-	-	-	-	-	



FTIR SPECTROSCOPY (Indexing Numbers) ASTM E2412						
Oxidation		2	1	2	1	1
Nitration		3	4	4	5	4
Anti Wear		50	50	58	67	59
Other Fluid		248	262	299	388	309

PARTICLE COUNT (particles per ml) ISO 4406:99						
Pore Block Particle Count Alarm Limits Marginal (24/22/20)						
Pore Block ISO Code		14/13/8	18/17/13	17/16/12	16/15/11	18/17/13
>4 Micron		115	1803	1266	517	1862
>6 Micron		44	700	492	201	723
>14 Micron		2	52	37	15	55
>50 Micron		0	1	1	0	1
>100 Micron		0	0	0	0	0

VISCOSITY (centistokes) ASTM D445 MOD						
Viscosity@40°C		265.4	257.5	258.9	257.5	260.3

ACID NUMBER (mg KOH/g) ASTM D974 MOD						
Acid Number		1.02	0.85	0.76	0.64	0.44

WATER (%) a-ASTM D6304C b-IWI-134* c-Crackle d-IWI-135* e-IWI-370*						
Water		0.2457 (a)	0.3487 (a)	0.1655 (a)	0.3218 (a)	0.2472 (a)

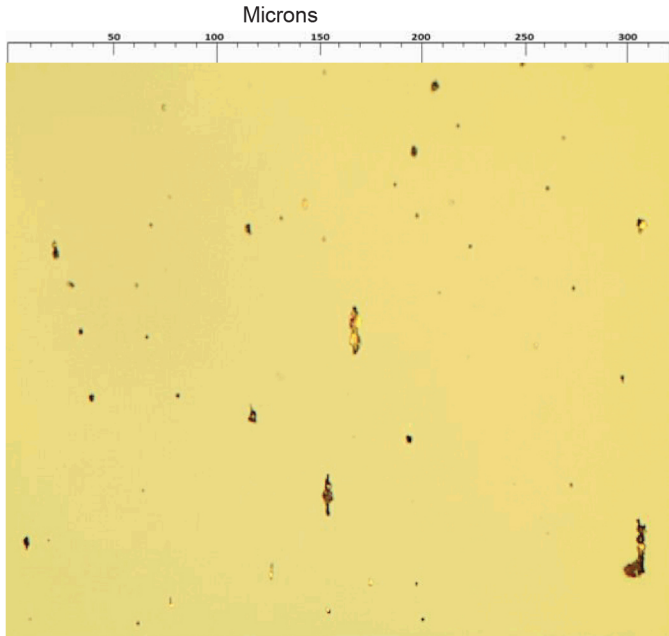
FERROUS WEAR CONCENTRATION (ppm)						
Ferrous Wear		5	5	5	1	2

Testing performed by Insight Services®. This test is accredited under the laboratory's ISO/IEC 17025 accreditation issued by the ANSI-ASQ National Accreditation Board. Refer to certificate and scope of accreditation L2221. (e) - Estimated sample date. (*) - Not in scope of accreditation. Company ABC assumes sole responsibility for the application of and reliance upon results and recommendations reported by TestOil, whose obligation is limited to good faith performance.

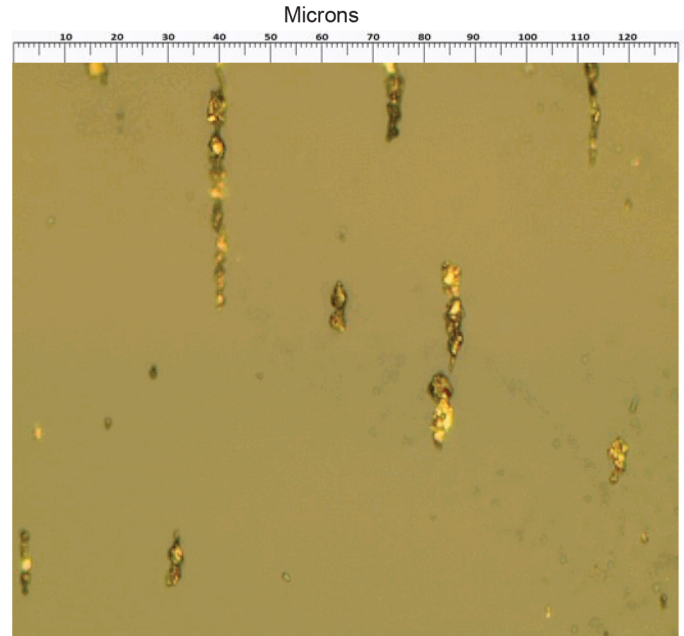
Wear Particle Analysis Report

	Trace	Light	Moderate	Heavy	Max. Size	Particle Composition
Rubbing Wear					5-15	Ferrous, White Non-Ferrous
Rolling Contact						
Sliding Wear						
Rolling/Sliding Wear						
Cutting Wear						
Chunks						
Spheres						
Corrosion						
Dark Metallic Oxides						
Red Oxides						
Dust/Dirt						
Other Contaminants						
Oxidation By-Products						

Observations: Analytical ferrography did not detect abnormal particles for this sample.



200x Dust/dirt, rubbing wear.



500x Dust/dirt, rubbing wear.

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