



OIL ANALYSIS REPORT

WEAR	SEVERE
CONTAMINATION	NORMAL
FLUID CONDITION	ABNORMAL

Area
Ferndale Phase II SP-13598
 Machine Id
T1 V80
 Component
Wind Turbine Gearbox
 Fluid
MOBIL MOBILGEAR SHC XMP 320 (--- GAL)

RECOMMENDATION

We recommend that you drain the oil from the component if this has not already been done. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0632700	WC0863468	WC0783088
Sample Date		Client Info		07 May 2024	07 Dec 2023	13 Apr 2023
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		0	0	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Filter Changed		Client Info		N/A	N/A	N/A
Sample Status				SEVERE	SEVERE	SEVERE

WEAR

Iron ppm levels are severe. The low ferrous density (PQ) index indicates the wear metal levels are due to corrosion.

PQ		ASTM D8184*	>50	0	0	0
Iron	ppm	ASTM D5185(m)	>75	▲ 105	▲ 104	▲ 109
Chromium	ppm	ASTM D5185(m)	>5	1	1	1
Nickel	ppm	ASTM D5185(m)	>10	<1	0	<1
Titanium	ppm	ASTM D5185(m)	>10	0	0	0
Silver	ppm	ASTM D5185(m)		0	0	0
Aluminum	ppm	ASTM D5185(m)	>10	<1	<1	<1
Lead	ppm	ASTM D5185(m)	>15	0	<1	<1
Copper	ppm	ASTM D5185(m)	>5	<1	<1	<1
Tin	ppm	ASTM D5185(m)	>10	0	0	0
Vanadium	ppm	ASTM D5185(m)		0	0	0
White Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE	NONE

CONTAMINATION

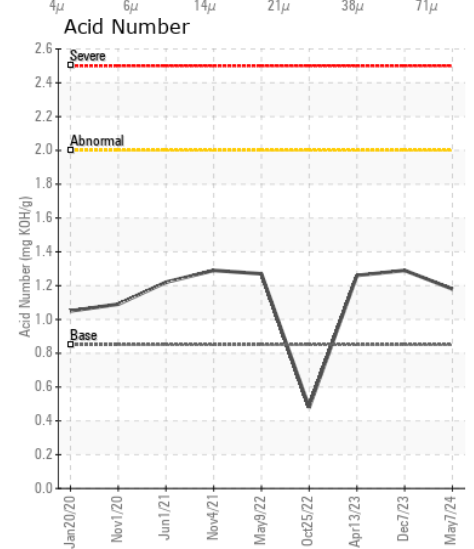
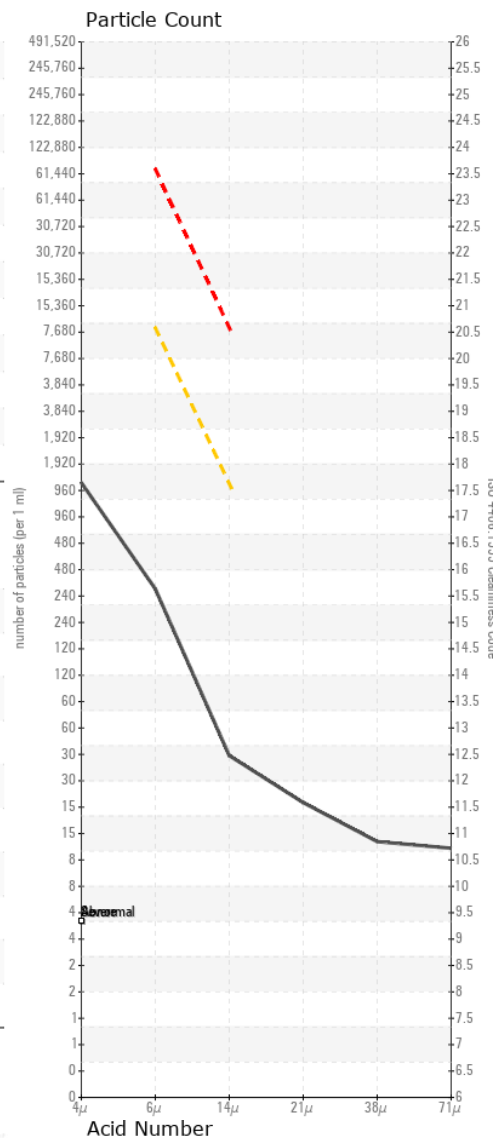
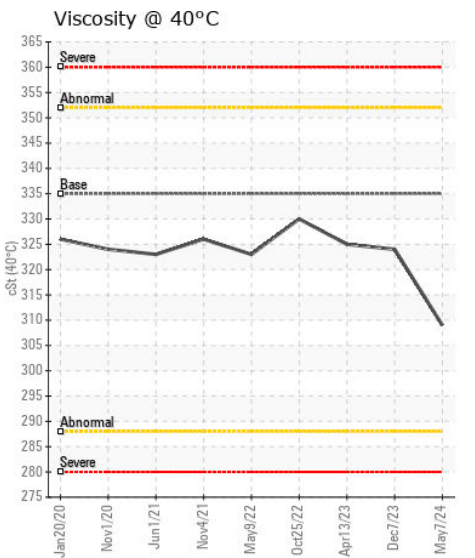
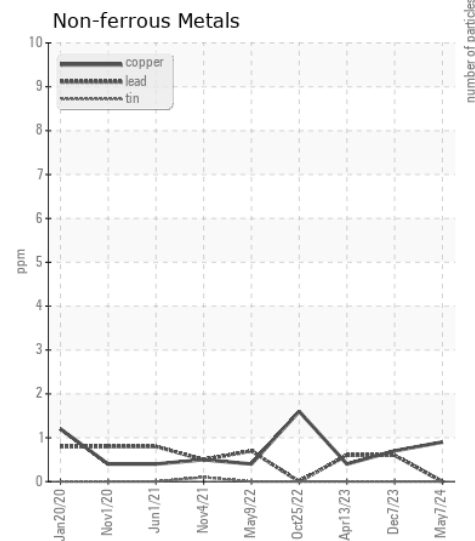
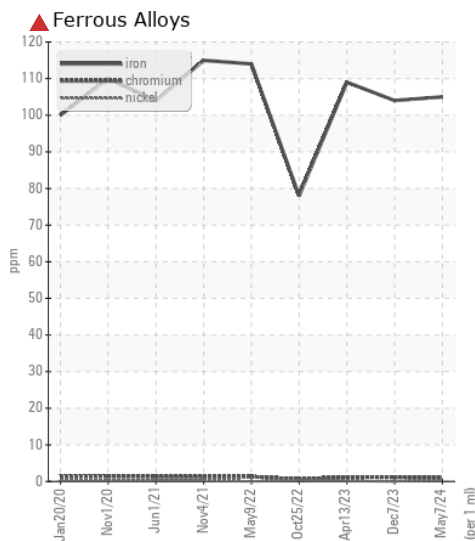
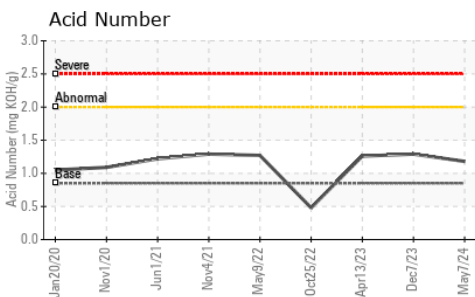
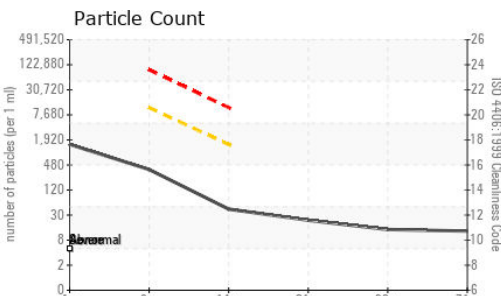
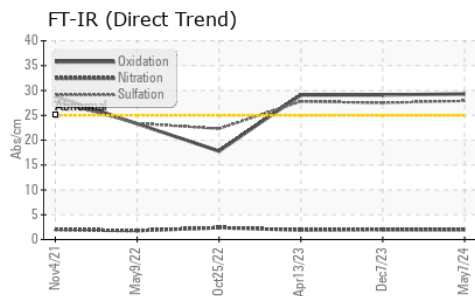
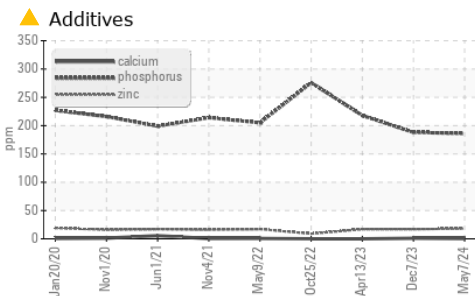
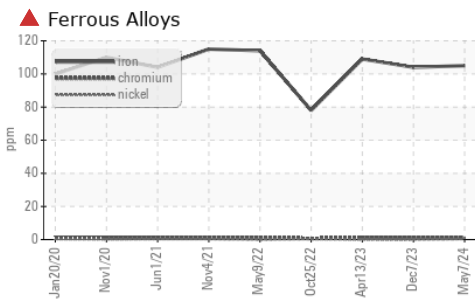
The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The water content is negligible. The system and fluid cleanliness is acceptable.

Silicon	ppm	ASTM D5185(m)	>40	1	1	2
Potassium	ppm	ASTM D5185(m)	>20	<1	1	<1
Water	%	ASTM D6304*	>0.02	0.004	0.004	0.006
ppm Water	ppm	ASTM D6304*	>200	47	49	68.2
Soot %	%	ASTM D7844*		0	0	0
Nitration	Abs/cm	ASTM D7624*		2.0	2.0	1.9
Sulfation	Abs/.1mm	ASTM D7415*		27.9	27.5	27.8
Particles >4µm		ASTM D7647		1317	1073	3728
Particles >6µm		ASTM D7647	>10000	328	211	1027
Particles >14µm		ASTM D7647	>1300	37	27	67
Particles >21µm		ASTM D7647	>320	20	11	12
Particles >38µm		ASTM D7647	>80	12	2	0
Particles >71µm		ASTM D7647	>20	11	1	0
Oil Cleanliness		ISO 4406 (c)	---/20/17	18/16/12	17/15/12	19/17/13
Silt	scalar	Visual*	NONE	NONE	NONE	NONE
Debris	scalar	Visual*	NONE	VLITE	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE	NONE
Appearance	scalar	Visual*	NORML	NORML	NORML	NORML
Odor	scalar	Visual*	NORML	NORML	NORML	NORML
Emulsified Water	scalar	Visual*	>0.02	NEG	NEG	NEG

FLUID CONDITION

Additive levels indicate the addition of a different brand, or type of oil. The AN level is acceptable for this fluid. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

Sodium	ppm	ASTM D5185(m)	>10	7	6	7
Boron	ppm	ASTM D5185(m)	0	1	<1	1
Barium	ppm	ASTM D5185(m)		0	0	0
Molybdenum	ppm	ASTM D5185(m)	0	<1	1	2
Manganese	ppm	ASTM D5185(m)		1	<1	1
Magnesium	ppm	ASTM D5185(m)		<1	<1	0
Calcium	ppm	ASTM D5185(m)	0	<1	1	0
Phosphorus	ppm	ASTM D5185(m)	485	▲ 186	▲ 188	▲ 218
Zinc	ppm	ASTM D5185(m)	0	18	17	17
Sulfur	ppm	ASTM D5185(m)		6532	6692	6865
Oxidation	Abs/.1mm	ASTM D7414*		29.3	29.1	29.1
Acid Number (AN)	mg KOH/g	ASTM D974*	0.85	1.18	1.29	1.26
Visc @ 40°C	cSt	ASTM D7279(m)	335	309	324	325
Visc @ 100°C	cSt	ASTM D7279(m)	38.3	35.3	35.2	35.4
Viscosity Index (VI)	Scale	ASTM D2270*	164	160	154	154



ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0632700
Lab Number : 02639139
Unique Number : 5788301
Test Package : IND 2 (Additional Tests: FT-IR, KF, KV100, PQ, PrtCount, TAN Man, VI)

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To discuss this sample report, contact Customer Service at 1-800-268-2131.
 Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
 Validity of results and interpretation are based on the sample and information as supplied.