



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
Huron Wind Project SP-00517
 Machine Id
15410 pad 5 (S/N 303500)
 Component
Wind Turbine Gearbox
 Fluid
MOBIL MOBILGEAR SHC XMP 320 (280 LTR)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0863451	WC0783134	WC0305889
Sample Date		Client Info		05 Dec 2023	08 May 2023	13 Dec 2022
Machine Age	yrs	Client Info		0	0	0
Oil Age	yrs	Client Info		0	0	0
Filter Age	yrs	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				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

PQ		ASTM D8184*	>50	0	0	0
Iron	ppm	ASTM D5185(m)	>75	25	27	24
Chromium	ppm	ASTM D5185(m)	>5	0	0	0
Nickel	ppm	ASTM D5185(m)	>10	0	<1	<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	0
Lead	ppm	ASTM D5185(m)	>15	0	0	0
Copper	ppm	ASTM D5185(m)	>5	1	1	2
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

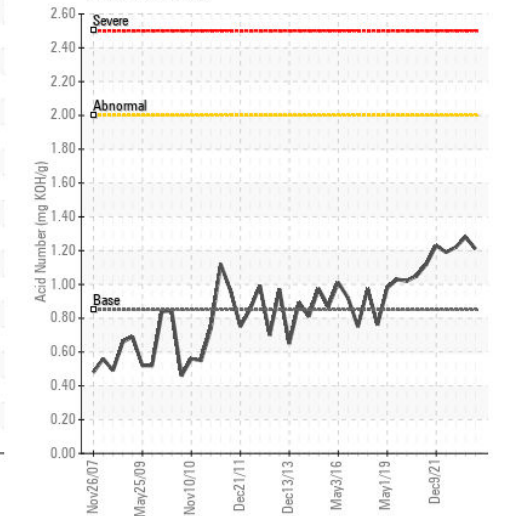
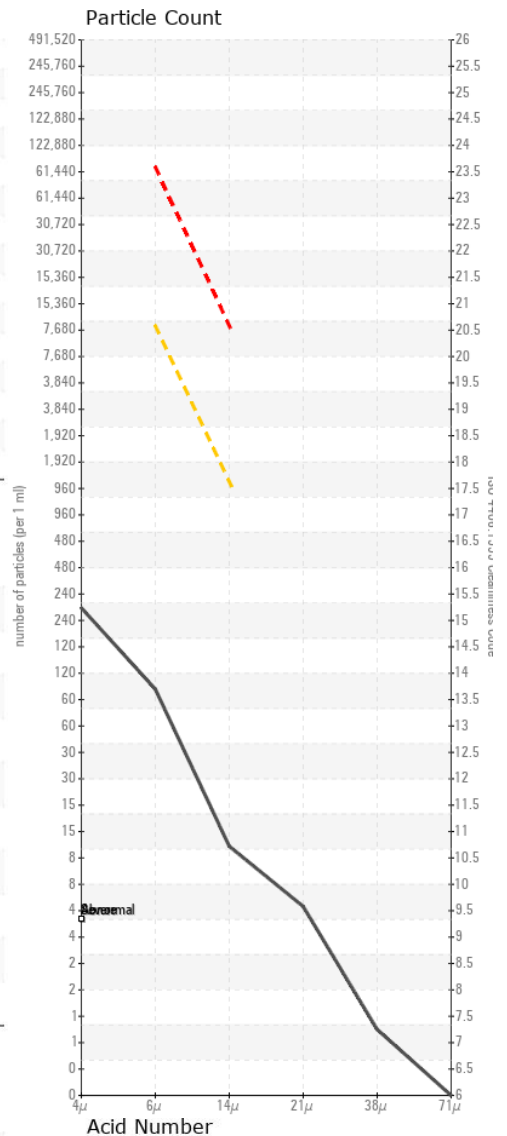
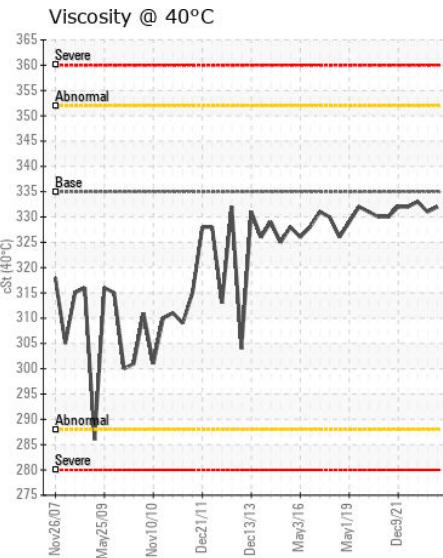
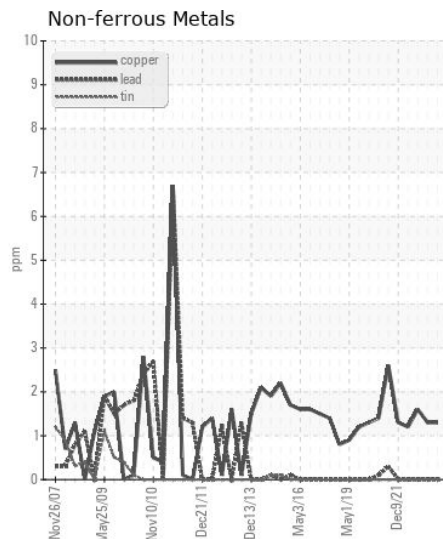
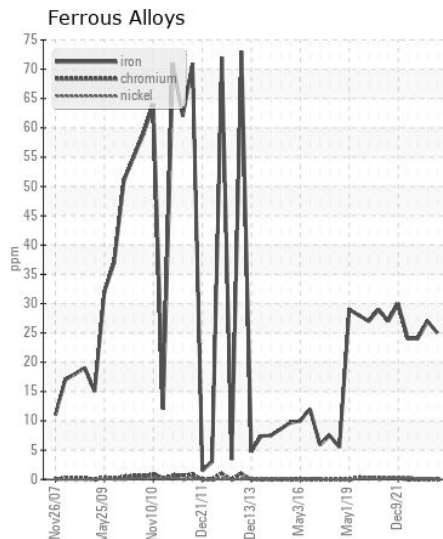
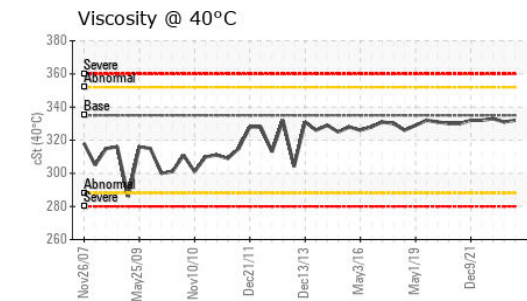
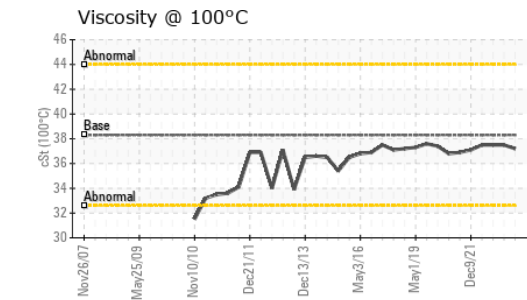
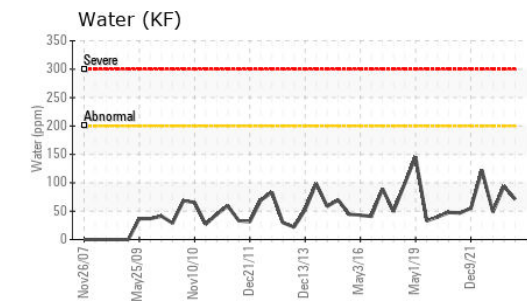
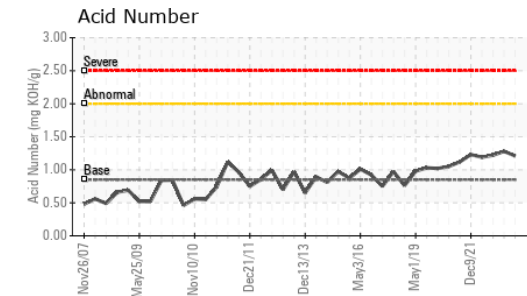
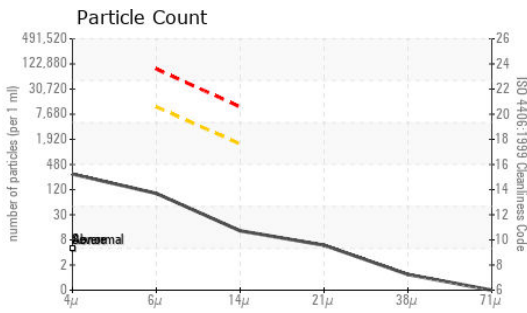
The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The water content is negligible. The system and fluid cleanliness is acceptable.

Silicon	ppm	ASTM D5185(m)	>40	<1	<1	2
Potassium	ppm	ASTM D5185(m)	>20	<1	<1	<1
Water	%	ASTM D6304*	>0.02	0.007	0.009	0.004
ppm Water	ppm	ASTM D6304*	>200	71	93.9	48.7
Soot %	%	ASTM D7844*		0	0	0
Nitration	Abs/cm	ASTM D7624*		2.0	2.0	2.3
Sulfation	Abs/.1mm	ASTM D7415*		47.3	46.9	26.9
Particles >4µm		ASTM D7647		249	458	6808
Particles >6µm		ASTM D7647	>10000	86	127	1443
Particles >14µm		ASTM D7647	>1300	11	14	64
Particles >21µm		ASTM D7647	>320	5	4	17
Particles >38µm		ASTM D7647	>80	1	0	7
Particles >71µm		ASTM D7647	>20	0	0	7
Oil Cleanliness		ISO 4406 (c)	>-/20/17	15/14/11	16/14/11	20/18/13
Silt	scalar	Visual*	NONE	NONE	NONE	NONE
Debris	scalar	Visual*	NONE	NONE	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

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185(m)	>10	2	2	2
Boron	ppm	ASTM D5185(m)	0	0	<1	1
Barium	ppm	ASTM D5185(m)		0	0	0
Molybdenum	ppm	ASTM D5185(m)	0	0	0	0
Manganese	ppm	ASTM D5185(m)		<1	2	1
Magnesium	ppm	ASTM D5185(m)		<1	0	<1
Calcium	ppm	ASTM D5185(m)	0	<1	0	0
Phosphorus	ppm	ASTM D5185(m)	485	392	461	425
Zinc	ppm	ASTM D5185(m)	0	15	15	14
Sulfur	ppm	ASTM D5185(m)		3963	4207	3908
Oxidation	Abs/.1mm	ASTM D7414*		54.4	54.0	23.6
Acid Number (AN)	mg KOH/g	ASTM D974*	0.85	1.21	1.28	1.22
Visc @ 40°C	cSt	ASTM D7279(m)	335	332	331	333
Visc @ 100°C	cSt	ASTM D7279(m)	38.3	37.2	37.5	37.5
Viscosity Index (VI)	Scale	ASTM D2270*	164	160	162	161



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 Vestas American Wind Technology Inc.
Sample No. : WC0863451 **Received** : 12 Jan 2024
Lab Number : 02608644 **Diagnosed** : 16 Jan 2024
Unique Number : 5709730 **Diagnostician** : Kevin Marson
Test Package : IND 2 (Additional Tests: FT-IR, KF, KV100, PQ, TAN Man, VI)

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.

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