



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
FOUR MILE RIDGE [200005315]

Machine Id
83309 SITE 5

Component
Wind Turbine Gearbox

Fluid
CASTROL OPTIGEAR SYNTHETIC X 320 (--- LTR)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		NX012335	NX012348	NX05620732
Sample Date		Client Info		16 Oct 2023	22 Mar 2023	01 Jun 2022
Machine Age	hrs	Client Info		69591	63375	0
Oil Age	hrs	Client Info		69591	63375	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Not Changed	Not Changed	N/A
Filter Changed		Client Info		Changed	Changed	N/A
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

PQ		ASTM D8184	>80	15	12	21
Iron	ppm	ASTM D5185m	>150	4	2	2
Chromium	ppm	ASTM D5185m	>5	<1	0	0
Nickel	ppm	ASTM D5185m	>10	<1	0	0
Titanium	ppm	ASTM D5185m	>10	<1	0	0
Silver	ppm	ASTM D5185m		<1	0	0
Aluminum	ppm	ASTM D5185m	>10	4	<1	1
Lead	ppm	ASTM D5185m	>20	<1	0	0
Copper	ppm	ASTM D5185m	>50	2	<1	<1
Tin	ppm	ASTM D5185m	>10	0	0	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

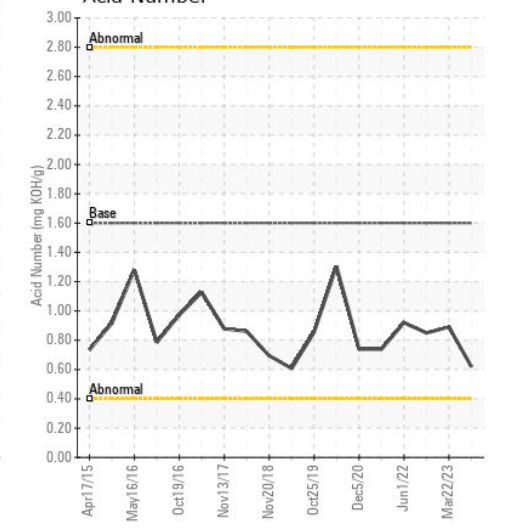
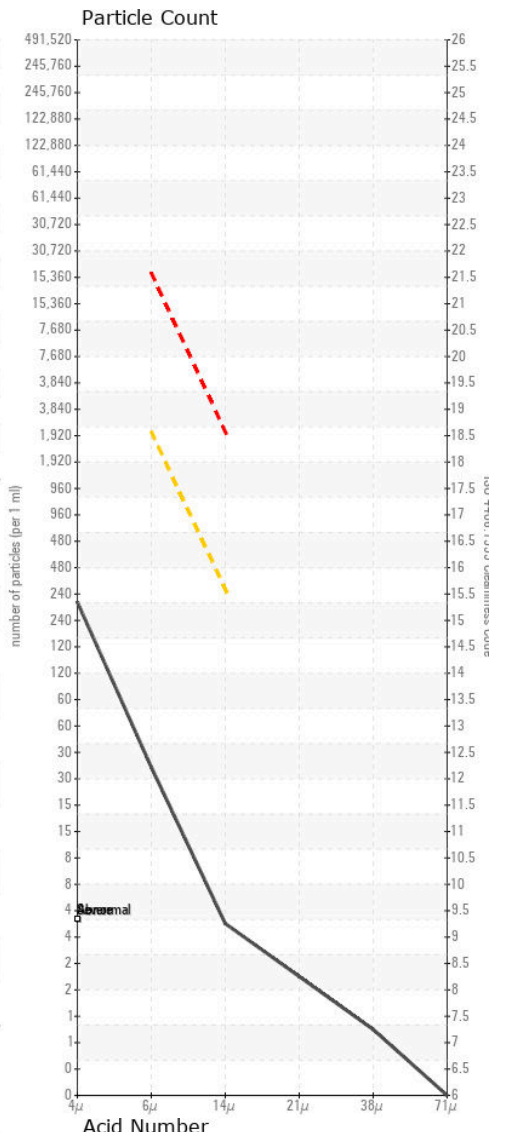
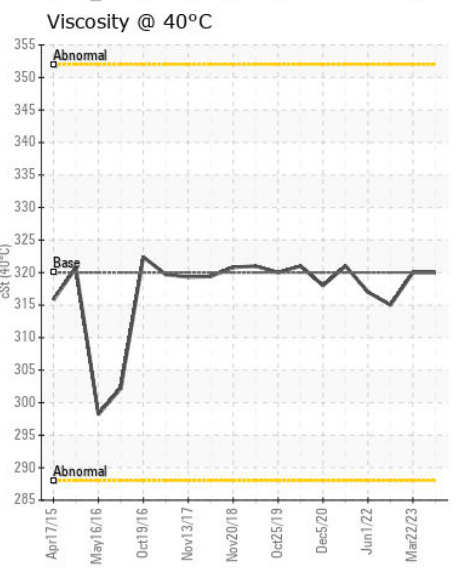
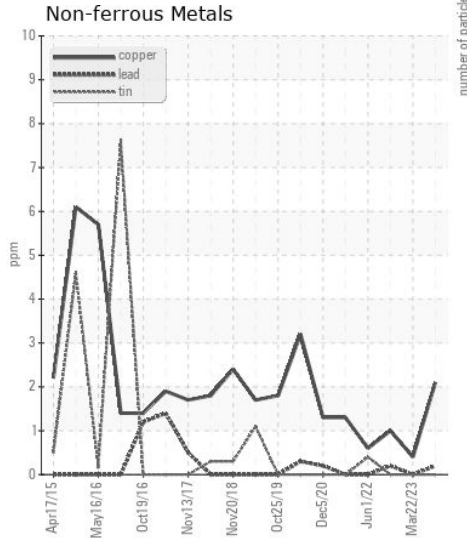
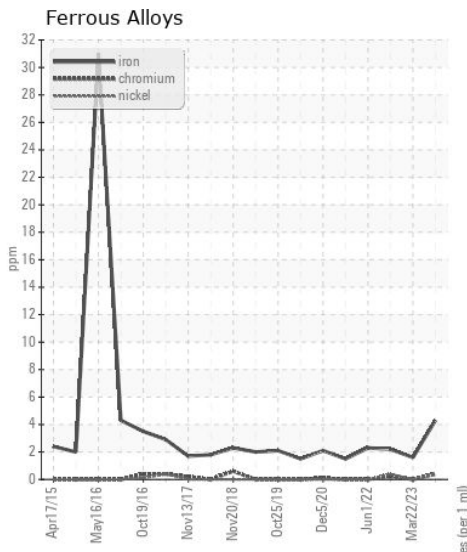
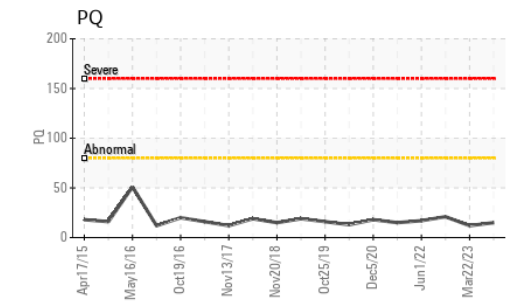
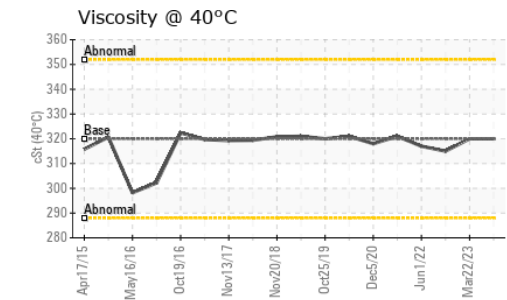
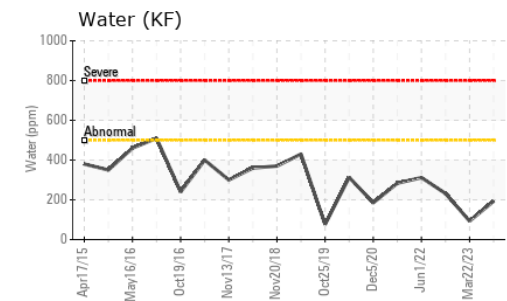
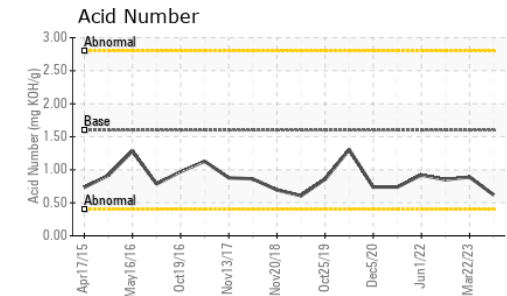
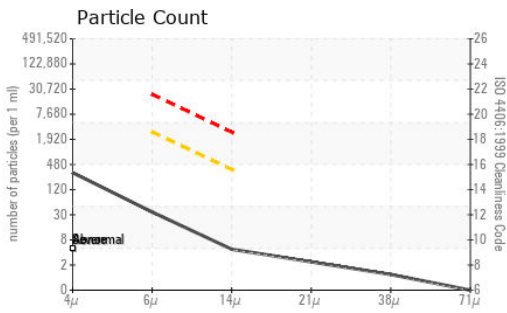
There is no indication of any contamination in the component. The amount and size of particulates present in the system is acceptable.

Silicon	ppm	ASTM D5185m	>50	13	10	10
Potassium	ppm	ASTM D5185m	>20	1	0	0
Water	%	ASTM D6304	>0.05	0.019	0.009	0.023
ppm Water	ppm	ASTM D6304	>500	193	93.1	232.0
Particles >4µm		ASTM D7647		269	679	1358
Particles >6µm		ASTM D7647	>2500	31	50	277
Particles >14µm		ASTM D7647	>320	4	4	23
Particles >21µm		ASTM D7647	>80	2	2	7
Particles >38µm		ASTM D7647	>20	1	0	1
Particles >71µm		ASTM D7647	>4	0	0	0
Oil Cleanliness		ISO 4406 (c)	--/18/15	15/12/9	17/13/9	18/15/12
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	>0.05	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 D5185m	>20	1	4	3
Boron	ppm	ASTM D5185m		<1	0	0
Barium	ppm	ASTM D5185m		8	0	1
Molybdenum	ppm	ASTM D5185m	1150	757	749	776
Manganese	ppm	ASTM D5185m		<1	<1	0
Magnesium	ppm	ASTM D5185m		4	9	7
Calcium	ppm	ASTM D5185m	2000	1456	1465	1435
Phosphorus	ppm	ASTM D5185m	400	308	339	319
Zinc	ppm	ASTM D5185m	0	7	0	0
Sulfur	ppm	ASTM D5185m	1850	1981	1693	1660
Acid Number (AN)	mg KOH/g	ASTM D8045	1.6	0.62	0.89	0.85
Visc @ 40°C	cSt	ASTM D445	320	320	320	315



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : NX012335

Lab Number : 06098388

Unique Number : 10896618

Test Package : IND 2 (Additional Tests: KF, PQ, PrtCount)

To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Received : 23 Feb 2024

Tested : 26 Feb 2024

Diagnosed : 26 Feb 2024 - Don Baldrige

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