



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
FOUR MILE RIDGE [200005315]

Machine Id
83314 SITE 8

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		NX012338	NX012351	NX010439
Sample Date		Client Info		03 Nov 2023	09 Mar 2023	31 Oct 2022
Machine Age	hrs	Client Info		70725	64549	62077
Oil Age	hrs	Client Info		70725	64549	62077
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Not Changed	Not Changed	Not Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

PQ		ASTM D8184	>80	8	11	11
Iron	ppm	ASTM D5185m	>150	7	6	6
Chromium	ppm	ASTM D5185m	>5	0	0	<1
Nickel	ppm	ASTM D5185m	>10	0	0	0
Titanium	ppm	ASTM D5185m	>10	0	0	0
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>10	5	<1	0
Lead	ppm	ASTM D5185m	>20	0	0	<1
Copper	ppm	ASTM D5185m	>50	1	<1	<1
Tin	ppm	ASTM D5185m	>10	<1	0	<1
Vanadium	ppm	ASTM D5185m		0	0	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

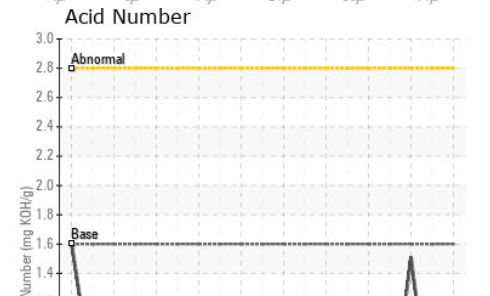
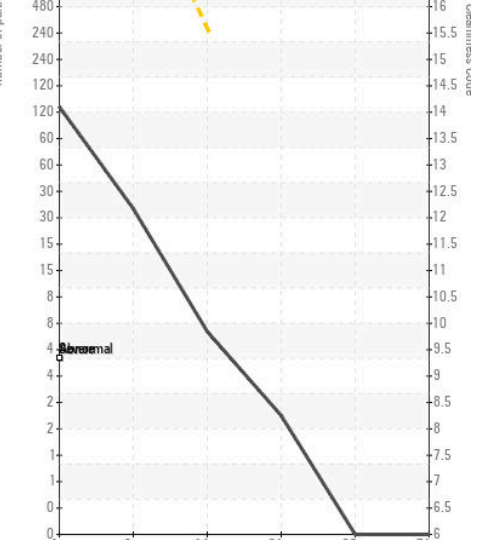
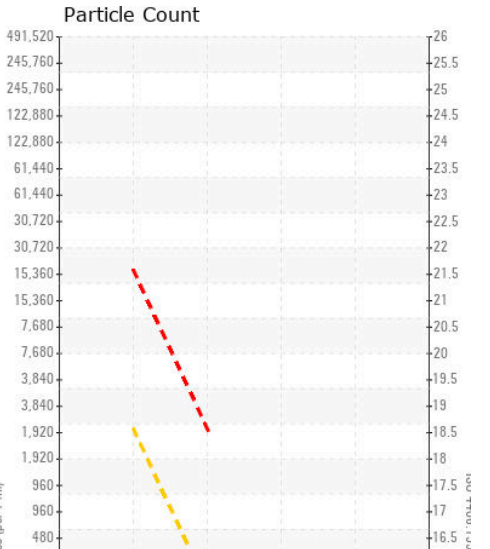
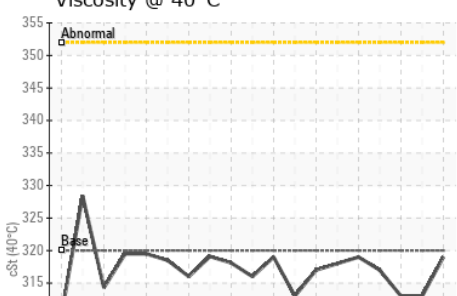
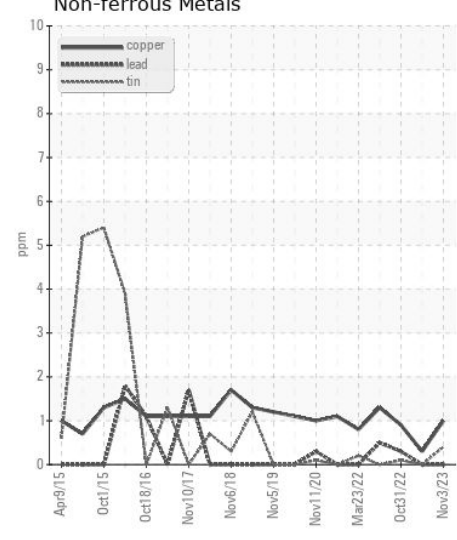
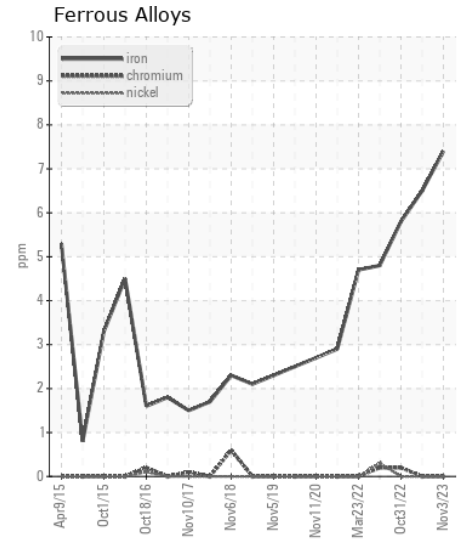
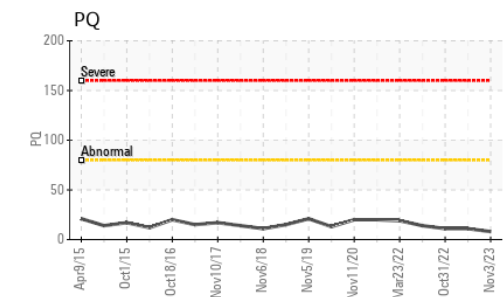
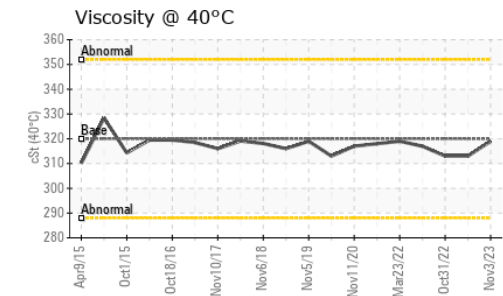
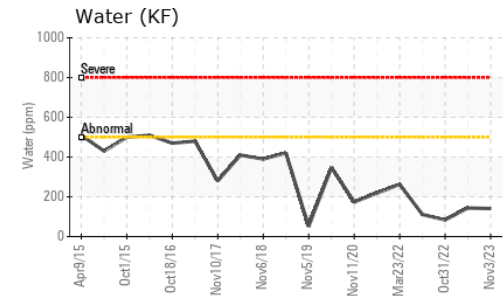
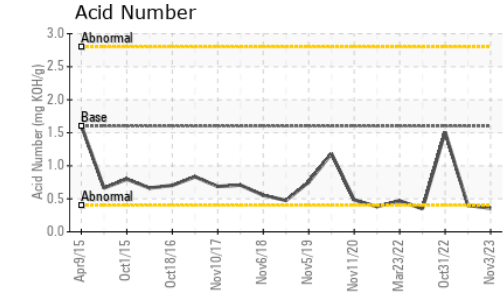
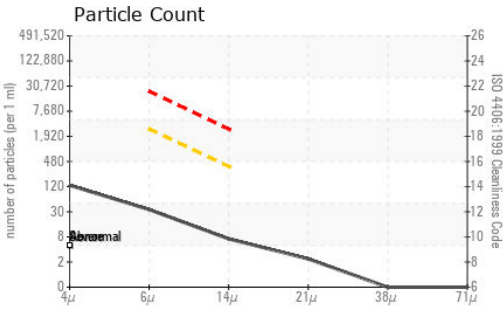
There is no indication of any contamination in the component. The amount and size of particulates present in the system is acceptable.

Silicon	ppm	ASTM D5185m	>50	7	8	7
Potassium	ppm	ASTM D5185m	>20	<1	0	0
Water	%	ASTM D6304	>0.05	0.014	0.014	0.008
ppm Water	ppm	ASTM D6304	>500	141	144.0	83.5
Particles >4µm		ASTM D7647		114	194	60
Particles >6µm		ASTM D7647	>2500	30	38	16
Particles >14µm		ASTM D7647	>320	6	4	2
Particles >21µm		ASTM D7647	>80	2	1	1
Particles >38µm		ASTM D7647	>20	0	1	0
Particles >71µm		ASTM D7647	>4	0	1	0
Oil Cleanliness		ISO 4406 (c)	--/18/15	14/12/10	15/12/9	13/11/9
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	7	7	8
Boron	ppm	ASTM D5185m		22	0	34
Barium	ppm	ASTM D5185m		1	0	2
Molybdenum	ppm	ASTM D5185m	1150	606	571	556
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		6	8	6
Calcium	ppm	ASTM D5185m	2000	1193	1179	1125
Phosphorus	ppm	ASTM D5185m	400	310	304	283
Zinc	ppm	ASTM D5185m	0	0	0	1
Sulfur	ppm	ASTM D5185m	1850	1552	1413	1661
Acid Number (AN)	mg KOH/g	ASTM D8045	1.6	0.358	0.40	1.51
Visc @ 40°C	cSt	ASTM D445	320	319	313	313



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : NX012338
Lab Number : 06097721
Unique Number : 10890574
Test Package : IND 2 (Additional Tests: KF, PQ, PrtCount)

NORDEX USA - Chicago
 300 SOUTH WACKER DRIVE, SUITE 1500
 CHICAGO, IL
 US 60606

Received : 22 Feb 2024
 Tested : 23 Feb 2024
 Diagnosed : 25 Feb 2024 - Doug Bogart
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