



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
FOUR MILE RIDGE [200005315]

Machine Id
83303 SITE 13

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		NX004208	NX010428	NX05620733
Sample Date		Client Info		29 Mar 2023	27 Oct 2022	26 Apr 2022
Machine Age	hrs	Client Info		63806	61275	0
Oil Age	hrs	Client Info		63806	61275	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	18	20	24
Iron	ppm	ASTM D5185m	>150	48	40	37
Chromium	ppm	ASTM D5185m	>5	0	<1	<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	<1	<1	<1
Lead	ppm	ASTM D5185m	>20	0	<1	0
Copper	ppm	ASTM D5185m	>50	2	2	2
Tin	ppm	ASTM D5185m	>10	0	<1	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

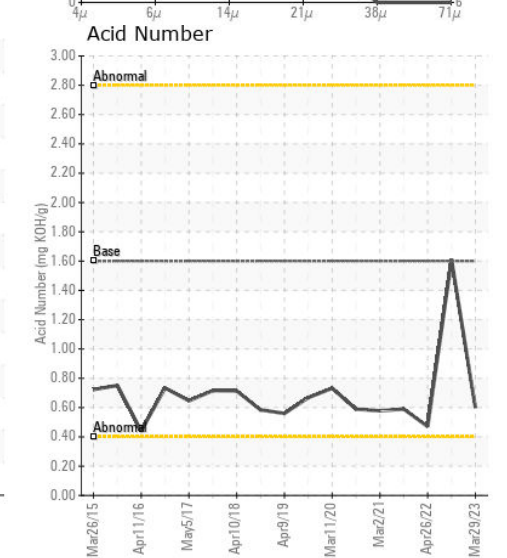
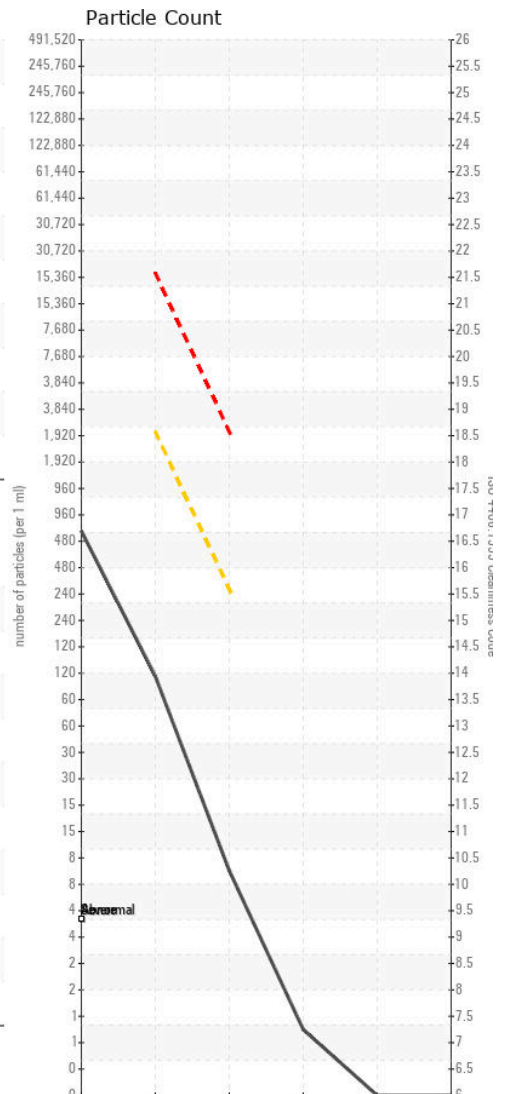
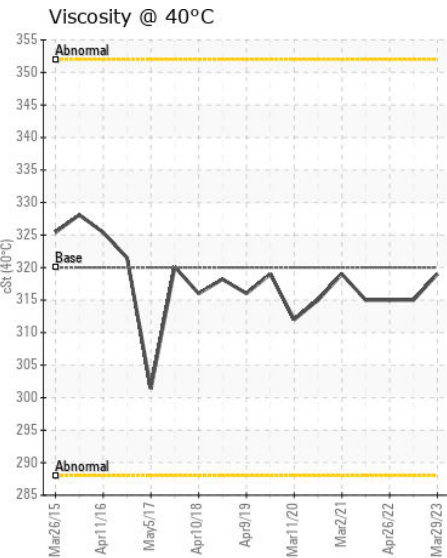
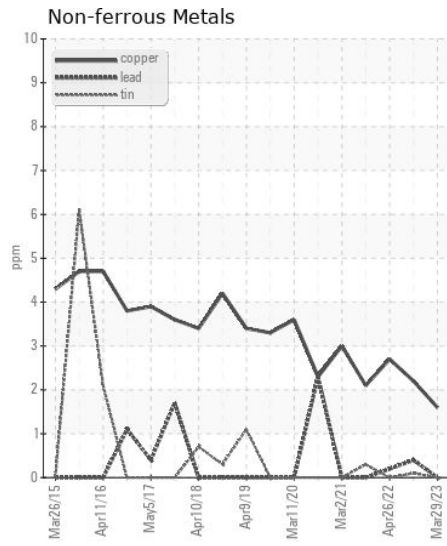
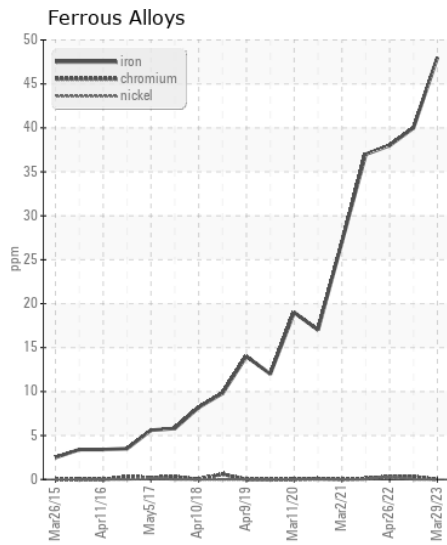
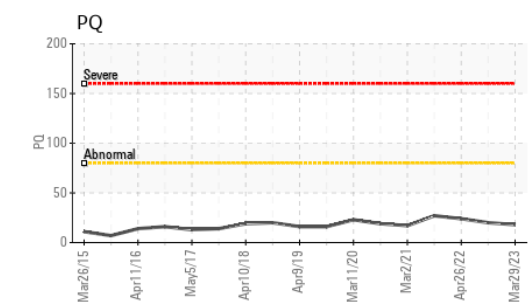
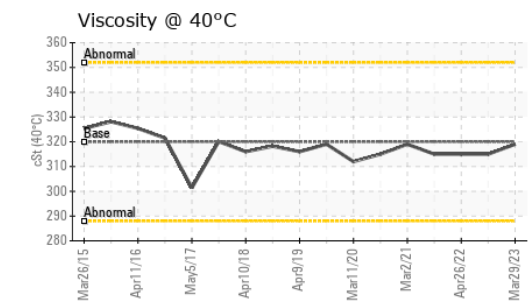
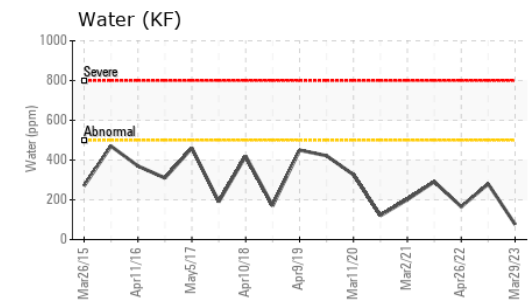
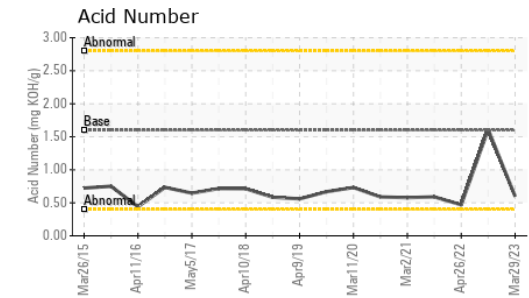
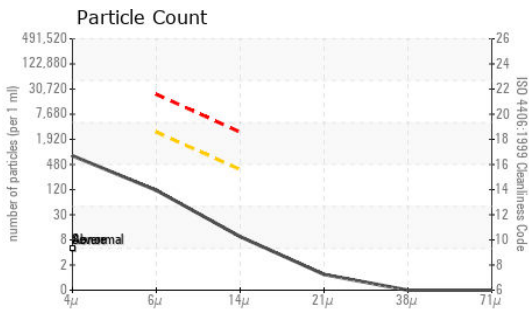
There is no indication of any contamination in the component. The amount and size of particulates present in the system is acceptable.

Silicon	ppm	ASTM D5185m	>50	10	10	9
Potassium	ppm	ASTM D5185m	>20	0	<1	0
Water	%	ASTM D6304	>0.05	0.007	0.027	0.016
ppm Water	ppm	ASTM D6304	>500	76.4	279.8	165.4
Particles >4µm		ASTM D7647		682	379	428
Particles >6µm		ASTM D7647	>2500	102	126	107
Particles >14µm		ASTM D7647	>320	8	19	16
Particles >21µm		ASTM D7647	>80	1	6	4
Particles >38µm		ASTM D7647	>20	0	1	1
Particles >71µm		ASTM D7647	>4	0	0	0
Oil Cleanliness		ISO 4406 (c)	--/18/15	17/14/10	16/14/11	16/14/11
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	9	9	6
Boron	ppm	ASTM D5185m		0	46	0
Barium	ppm	ASTM D5185m		0	2	2
Molybdenum	ppm	ASTM D5185m	1150	736	722	728
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		10	7	7
Calcium	ppm	ASTM D5185m	2000	1481	1461	1411
Phosphorus	ppm	ASTM D5185m	400	341	324	320
Zinc	ppm	ASTM D5185m	0	0	2	<1
Sulfur	ppm	ASTM D5185m	1850	1671	1942	1602
Acid Number (AN)	mg KOH/g	ASTM D8045	1.6	0.60	1.61	0.47
Visc @ 40°C	cSt	ASTM D445	320	319	315	315



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : NX004208 **Received** : 07 Apr 2023
Lab Number : 05814551 **Diagnosed** : 11 Apr 2023
Unique Number : 10417343 **Diagnostician** : Doug Bogart
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)

NORDEX USA - Chicago
 300 SOUTH WACKER DRIVE, SUITE 1500
 CHICAGO, IL
 US 60606
 Contact: DEVIN LINEHAN
 DLinehan@nordex-online.com
 T: (312)386-4124
 F: (312)386-7102