



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
FOUR MILE RIDGE [200005315]

Machine Id
83307 SITE 1

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		NX012340	NX012344	NX011128
Sample Date		Client Info		20 Feb 2024	30 Mar 2023	08 Dec 2022
Machine Age	hrs	Client Info		65541	63759	61190
Oil Age	hrs	Client Info		65541	63759	61190
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	14	9	6
Iron	ppm	ASTM D5185m	>150	<1	1	2
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	6	<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	<1	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

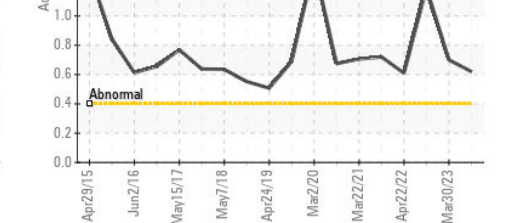
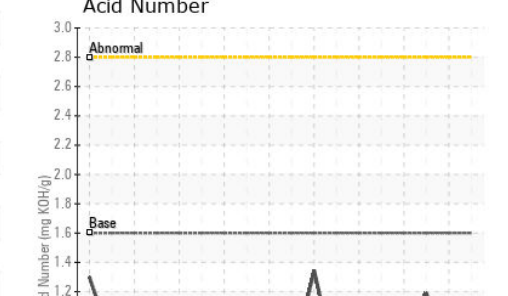
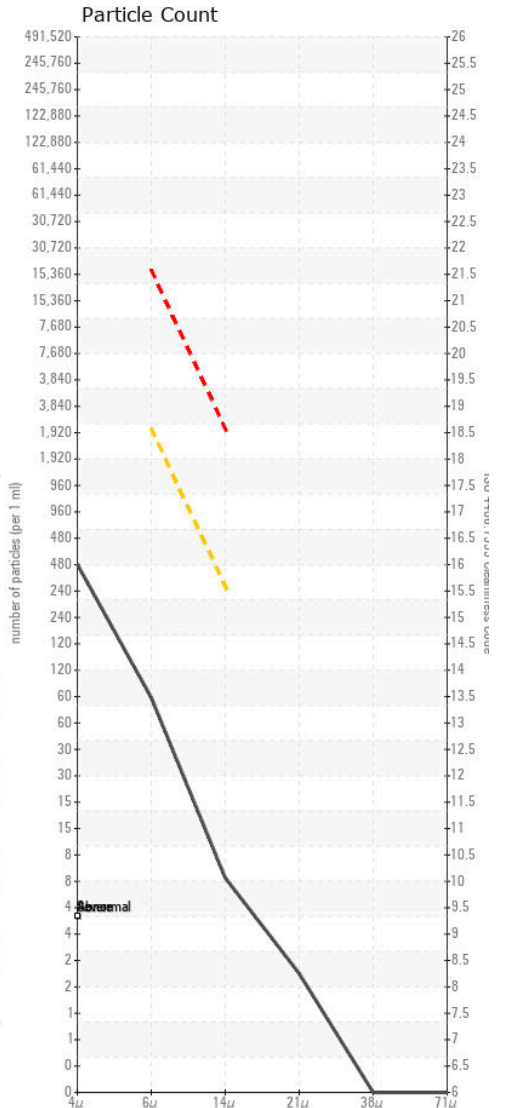
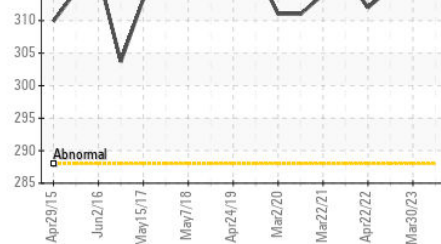
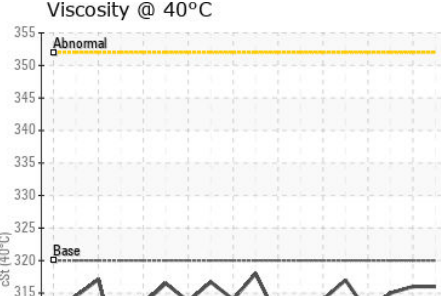
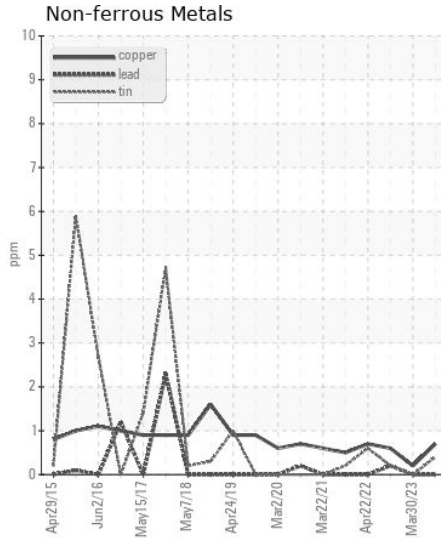
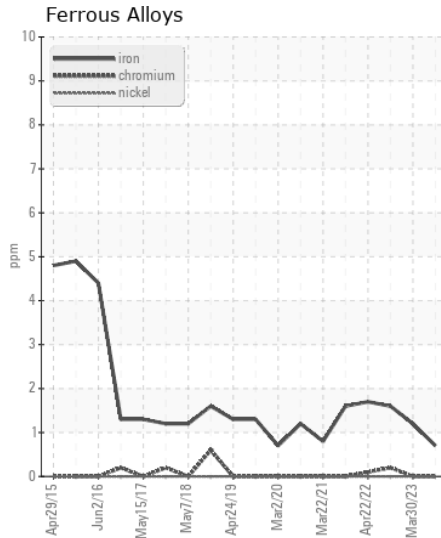
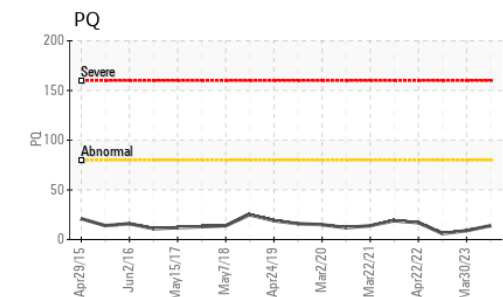
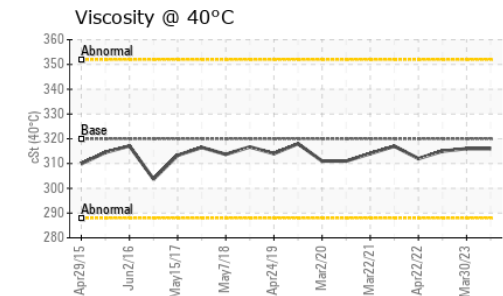
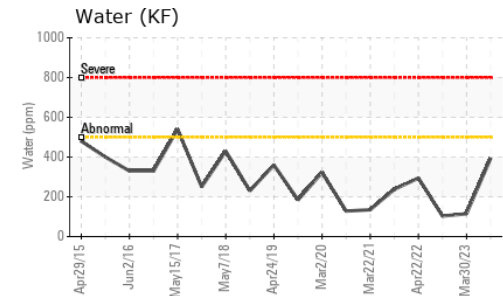
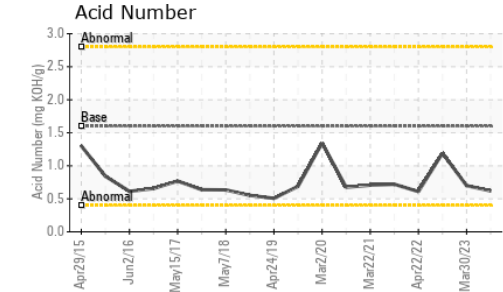
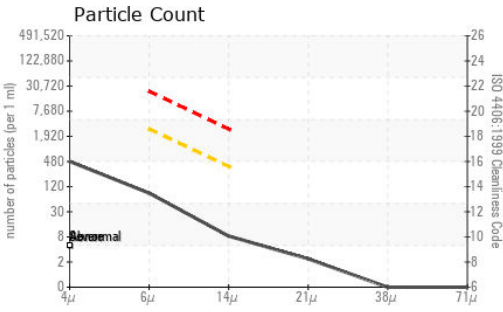
There is no indication of any contamination in the component. The amount and size of particulates present in the system is acceptable.

Silicon	ppm	ASTM D5185m	>50	8	9	9
Potassium	ppm	ASTM D5185m	>20	<1	0	0
Water	%	ASTM D6304	>0.05	0.039	0.011	0.010
ppm Water	ppm	ASTM D6304	>500	394	114.6	103.2
Particles >4µm		ASTM D7647		424	178	3748
Particles >6µm		ASTM D7647	>2500	74	51	1111
Particles >14µm		ASTM D7647	>320	7	10	85
Particles >21µm		ASTM D7647	>80	2	3	21
Particles >38µm		ASTM D7647	>20	0	0	3
Particles >71µm		ASTM D7647	>4	0	0	0
Oil Cleanliness		ISO 4406 (c)	--/18/15	16/13/10	15/13/10	19/17/14
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	6	8
Boron	ppm	ASTM D5185m		25	0	43
Barium	ppm	ASTM D5185m		1	0	2
Molybdenum	ppm	ASTM D5185m	1150	688	682	683
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		7	9	7
Calcium	ppm	ASTM D5185m	2000	1292	1316	1310
Phosphorus	ppm	ASTM D5185m	400	306	286	304
Zinc	ppm	ASTM D5185m	0	0	0	1
Sulfur	ppm	ASTM D5185m	1850	1632	1368	1867
Acid Number (AN)	mg KOH/g	ASTM D8045	1.6	0.62	0.70	1.19
Visc @ 40°C	cSt	ASTM D445	320	316	316	315



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : NX012340 **Received** : 22 Feb 2024
Lab Number : 06097716 **Tested** : 23 Feb 2024
Unique Number : 10890569 **Diagnosed** : 25 Feb 2024 - Doug Bogart
Test Package : IND 2 (Additional Tests: KF, PQ, PrtCount)

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

Certificate L2367
 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)