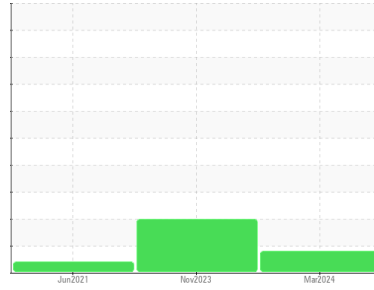




OIL ANALYSIS REPORT

Sample Rating Trend



WEAR



Area
DAKOTA RANGE III [200006928]

Machine Id
02WEA87774 - A-02

Component
Wind Turbine Gearbox

Fluid
FUCHS RENOLIN UNISYN CLP 320 (--- LTR)

DIAGNOSIS

Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

Wear

Gear wear is indicated. All other component wear rates are normal.

Contamination

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

Fluid Condition

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

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	NX015971	NX06033477	NX05437522
Sample Date	Client Info	28 Mar 2024	20 Nov 2023	24 Jun 2021
Machine Age	hrs	21405	18502	0
Oil Age	hrs	21405	16677	0
Oil Changed	Client Info	Not Changed	Not Changd	Not Changed
Sample Status		ABNORMAL	ABNORMAL	ATTENTION

WEAR METALS

method	limit/base	current	history1	history2
PQ	ASTM D8184 >50	15	18	17
Iron	ppm ASTM D5185m >30	▲ 35	25	6
Chromium	ppm ASTM D5185m >3	<1	<1	0
Nickel	ppm ASTM D5185m >3	<1	<1	0
Titanium	ppm ASTM D5185m >10	<1	0	0
Silver	ppm ASTM D5185m	0	0	<1
Aluminum	ppm ASTM D5185m >30	3	0	0
Lead	ppm ASTM D5185m >15	1	<1	<1
Copper	ppm ASTM D5185m >10	<1	<1	<1
Tin	ppm ASTM D5185m >10	<1	<1	<1
Antimony	ppm ASTM D5185m >5	---	---	0
Vanadium	ppm ASTM D5185m	0	<1	0
Cadmium	ppm ASTM D5185m	0	0	0

ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185m	5	12	9
Barium	ppm ASTM D5185m	0	<1	0
Molybdenum	ppm ASTM D5185m	0	<1	<1
Manganese	ppm ASTM D5185m	0	<1	<1
Magnesium	ppm ASTM D5185m	<1	0	0
Calcium	ppm ASTM D5185m	25	21	24
Phosphorus	ppm ASTM D5185m	207	216	227
Zinc	ppm ASTM D5185m	3	<1	0
Sulfur	ppm ASTM D5185m	4877	5227	4975

CONTAMINANTS

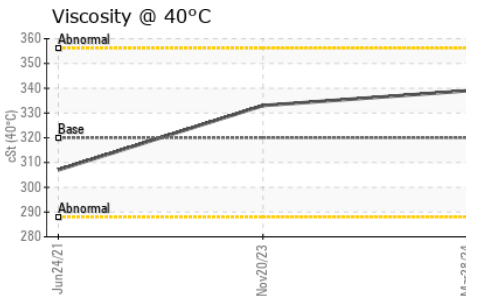
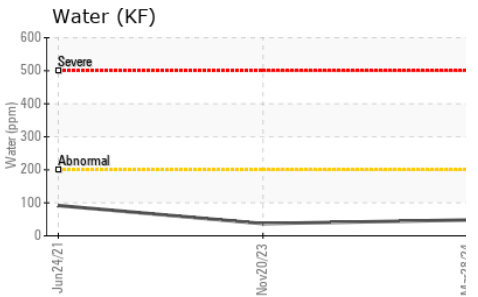
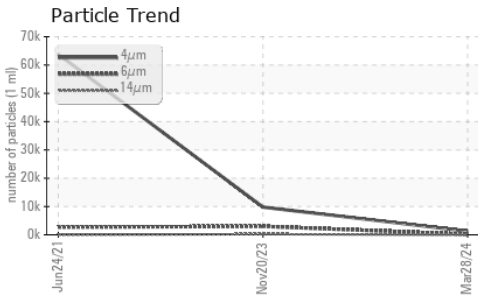
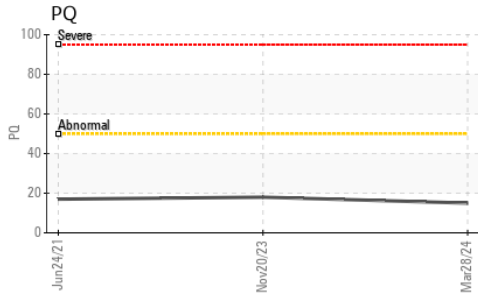
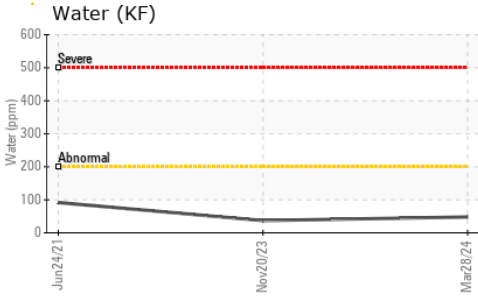
method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m >+15	3	6	5
Sodium	ppm ASTM D5185m	2	3	<1
Potassium	ppm ASTM D5185m >20	2	1	0
Water	% ASTM D6304 >0.02	0.004	0.003	0.009
ppm Water	ppm ASTM D6304 >200	48	37	91.7

FLUID CLEANLINESS

method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	1292	9789	63743
Particles >6µm	ASTM D7647 >320	197	▲ 2988	● 2689
Particles >14µm	ASTM D7647 >40	9	▲ 235	30
Particles >21µm	ASTM D7647 >10	3	▲ 59	8
Particles >38µm	ASTM D7647 >3	0	▲ 3	0
Particles >71µm	ASTM D7647 >3	0	0	0
Oil Cleanliness	ISO 4406 (c) >--/15/12	17/15/10	▲ 20/19/15	● 23/19/12



OIL ANALYSIS REPORT

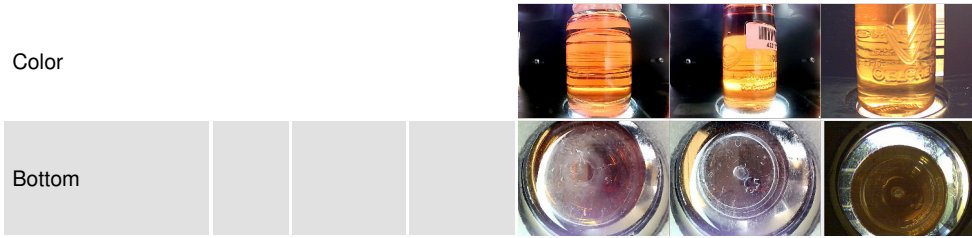


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	0.6	0.36	0.33	0.368

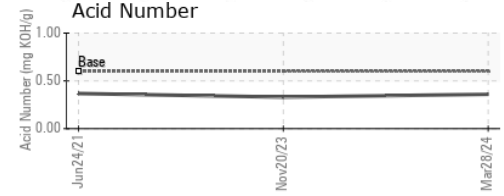
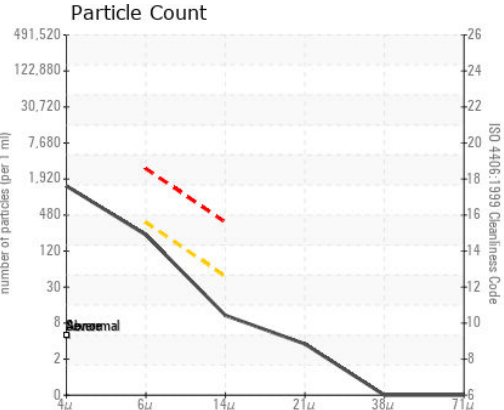
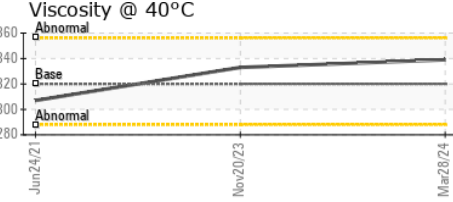
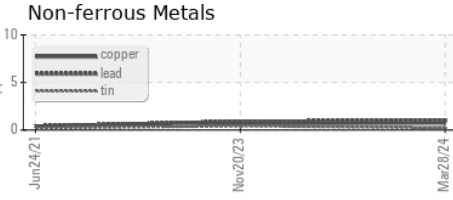
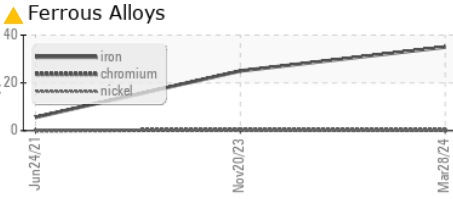
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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
Free Water	scalar	*Visual		NEG	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	320	339	333	307

SAMPLE IMAGES		method	limit/base	current	history1	history2
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GRAPHS



Certificate L2367

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

Sample No. : NX015971

Lab Number : **06136353**

Unique Number : 10955818

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 : 02 Apr 2024

Tested : 03 Apr 2024

Diagnosed : 04 Apr 2024 - Don Baldrige

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