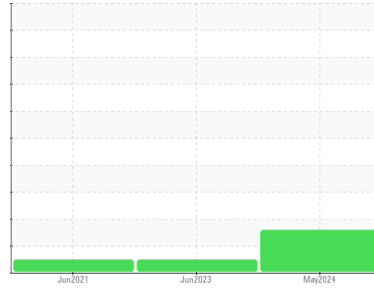




OIL ANALYSIS REPORT

Sample Rating Trend



ISO



Area
DAKOTA RANGE III [200006928]

Machine Id
08WEA87758 - B-02

Component
Wind Turbine Gearbox

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

DIAGNOSIS

Recommendation

The filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is a high amount of particulates present 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	NX015984	NX05914506	NX05437520
Sample Date	Client Info	22 May 2024	05 Jun 2023	08 Jun 2021
Machine Age	hrs	23250	0	1494
Oil Age	hrs	23250	0	0
Oil Changed	Client Info	N/A	N/A	Not Changd
Sample Status		ABNORMAL	NORMAL	NORMAL

WEAR METALS

method	limit/base	current	history1	history2		
PQ	ASTM D8184	>50	15	14	20	
Iron	ppm	ASTM D5185m	>30	27	13	4
Chromium	ppm	ASTM D5185m	>3	0	0	0
Nickel	ppm	ASTM D5185m	>3	0	<1	0
Titanium	ppm	ASTM D5185m	>10	0	0	0
Silver	ppm	ASTM D5185m		0	0	<1
Aluminum	ppm	ASTM D5185m	>30	0	0	0
Lead	ppm	ASTM D5185m	>15	0	0	1
Copper	ppm	ASTM D5185m	>10	1	0	<1
Tin	ppm	ASTM D5185m	>10	0	0	<1
Antimony	ppm	ASTM D5185m	>5	---	---	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0

ADDITIVES

method	limit/base	current	history1	history2		
Boron	ppm	ASTM D5185m		5	6	9
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		0	<1	<1
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		0	1	0
Calcium	ppm	ASTM D5185m		89	21	24
Phosphorus	ppm	ASTM D5185m		217	181	229
Zinc	ppm	ASTM D5185m		26	<1	0
Sulfur	ppm	ASTM D5185m		5679	5860	4996

CONTAMINANTS

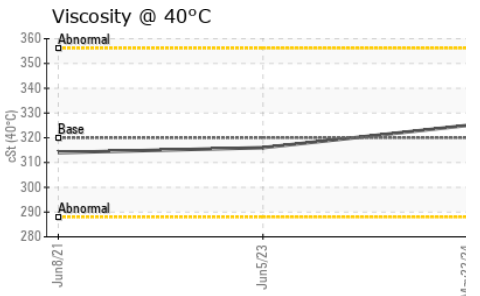
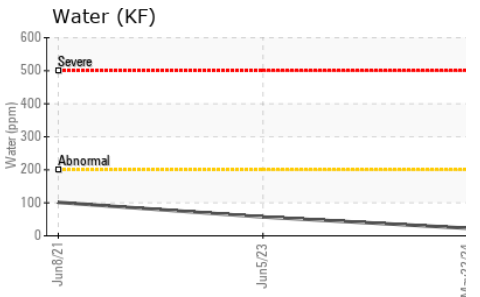
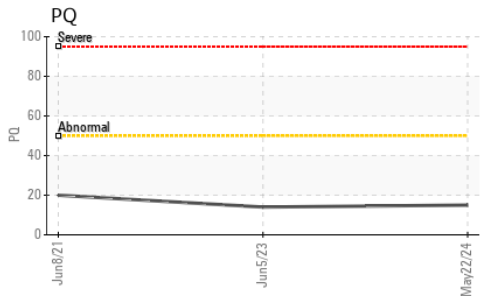
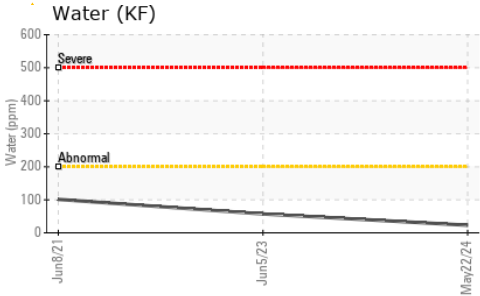
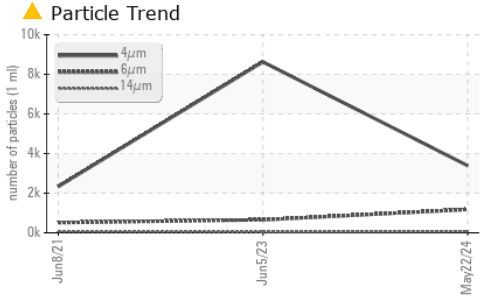
method	limit/base	current	history1	history2		
Silicon	ppm	ASTM D5185m	>+15	0	<1	8
Sodium	ppm	ASTM D5185m		4	1	<1
Potassium	ppm	ASTM D5185m	>20	0	0	0
Water	%	ASTM D6304	>0.02	0.002	0.005	0.010
ppm Water	ppm	ASTM D6304	>200	23	57.1	101.3

FLUID CLEANLINESS

method	limit/base	current	history1	history2	
Particles >4µm	ASTM D7647		3390	8626	2334
Particles >6µm	ASTM D7647	>320	▲ 1181	657	513
Particles >14µm	ASTM D7647	>40	▲ 70	41	65
Particles >21µm	ASTM D7647	>10	▲ 13	11	21
Particles >38µm	ASTM D7647	>3	1	1	0
Particles >71µm	ASTM D7647	>3	0	0	0
Oil Cleanliness	ISO 4406 (c)	>--/15/12	▲ 19/17/13	20/17/13	18/16/13



OIL ANALYSIS REPORT

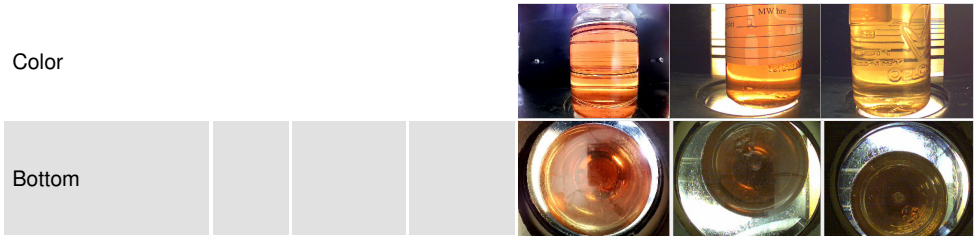


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	0.6	0.44	0.36	0.364

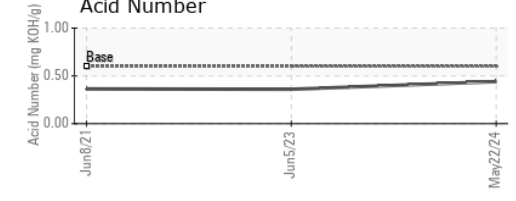
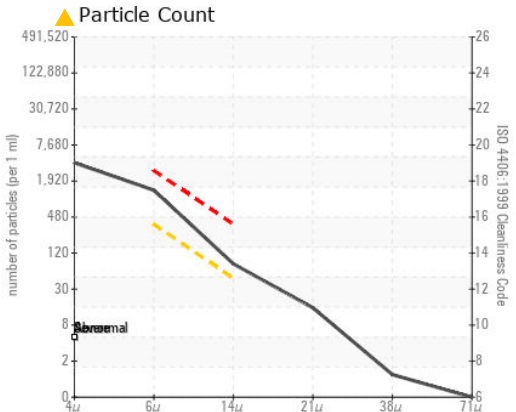
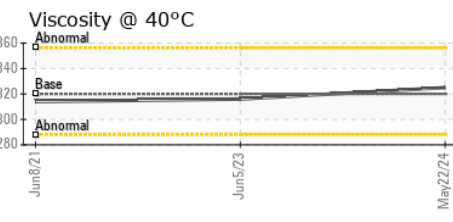
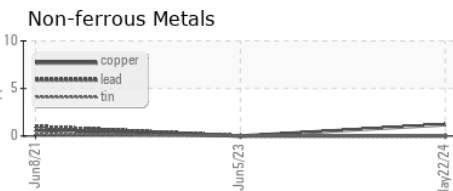
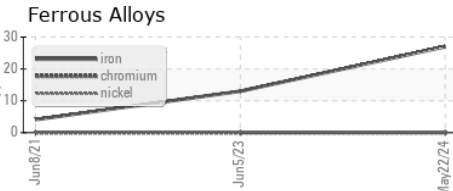
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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	325	316	314

SAMPLE IMAGES		method	limit/base	current	history1	history2
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GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : NX015984 **Received** : 31 May 2024
Lab Number : **06196666** **Tested** : 05 Jun 2024
Unique Number : 11058789 **Diagnosed** : 05 Jun 2024 - Jonathan Hester
Test Package : IND 2 (Additional Tests: KF, PQ, PrtCount)

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 CHICAGO, IL 60606
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 DLinehan@nordex-online.com
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 F: (312)386-7102

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)