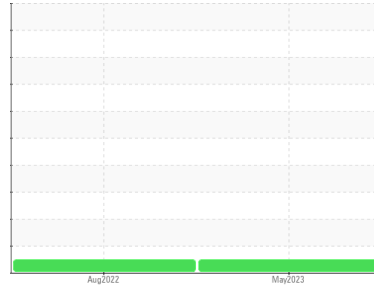




# OIL ANALYSIS REPORT

Sample Rating Trend

**NORMAL**



Area  
**FRONTIER II [200006776]**  
 Machine Id  
**22WEA86891 (S/N 1.614.181)**  
 Component  
**Wind Turbine Gearbox**  
 Fluid  
**FUCHS RENOLIN CLP ISO 320 (--- LTR)**

## DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

### Wear

All component wear rates are normal.

### Contamination

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

### 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			<b>NX05867855</b>	NX009981	---
Sample Date	Client Info			<b>15 May 2023</b>	11 Aug 2022	---
Machine Age	hrs	Client Info		<b>17232</b>	11057	---
Oil Age	hrs	Client Info		<b>0</b>	0	---
Oil Changed	Client Info			<b>N/A</b>	N/A	---
Sample Status				<b>NORMAL</b>	NORMAL	---

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184	>80	<b>17</b>	14	---
Iron	ppm	ASTM D5185m	>150	<b>17</b>	10	---
Chromium	ppm	ASTM D5185m	>5	<b>&lt;1</b>	0	---
Nickel	ppm	ASTM D5185m	>10	<b>0</b>	0	---
Titanium	ppm	ASTM D5185m	>10	<b>0</b>	0	---
Silver	ppm	ASTM D5185m		<b>0</b>	0	---
Aluminum	ppm	ASTM D5185m	>10	<b>&lt;1</b>	0	---
Lead	ppm	ASTM D5185m	>20	<b>0</b>	0	---
Copper	ppm	ASTM D5185m	>50	<b>&lt;1</b>	<1	---
Tin	ppm	ASTM D5185m	>3	<b>0</b>	0	---
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	---
Cadmium	ppm	ASTM D5185m		<b>0</b>	0	---

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		<b>4</b>	0	---
Barium	ppm	ASTM D5185m		<b>0</b>	<1	---
Molybdenum	ppm	ASTM D5185m		<b>0</b>	0	---
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	---
Magnesium	ppm	ASTM D5185m		<b>&lt;1</b>	0	---
Calcium	ppm	ASTM D5185m		<b>5</b>	8	---
Phosphorus	ppm	ASTM D5185m		<b>159</b>	191	---
Zinc	ppm	ASTM D5185m		<b>0</b>	<1	---
Sulfur	ppm	ASTM D5185m		<b>6100</b>	4827	---

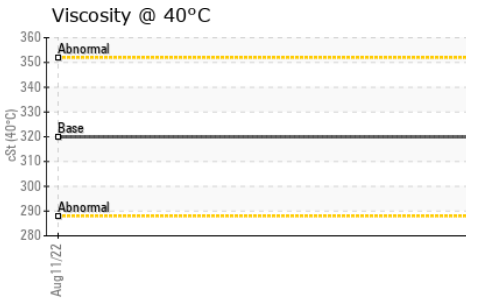
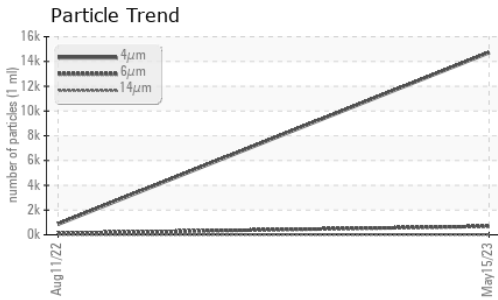
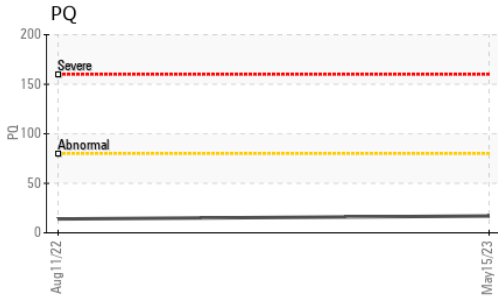
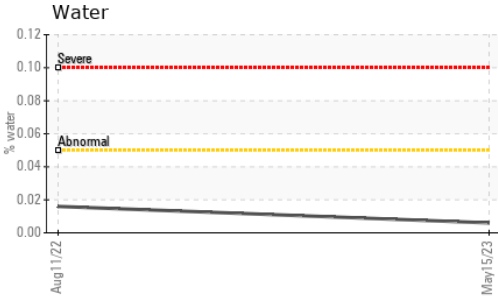
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>50	<b>5</b>	3	---
Sodium	ppm	ASTM D5185m	>20	<b>3</b>	1	---
Potassium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	0	---
Water	%	ASTM D6304	>0.05	<b>0.006</b>	0.016	---
ppm Water	ppm	ASTM D6304	>500	<b>63.5</b>	163.4	---

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647		<b>14717</b>	855	---
Particles >6µm		ASTM D7647	>2500	<b>686</b>	130	---
Particles >14µm		ASTM D7647	>320	<b>17</b>	16	---
Particles >21µm		ASTM D7647	>80	<b>1</b>	6	---
Particles >38µm		ASTM D7647	>20	<b>0</b>	1	---
Particles >71µm		ASTM D7647	>4	<b>0</b>	0	---
Oil Cleanliness		ISO 4406 (c)	>--/18/15	<b>21/17/11</b>	17/14/11	---

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		<b>0.56</b>	0.50	---



# OIL ANALYSIS REPORT



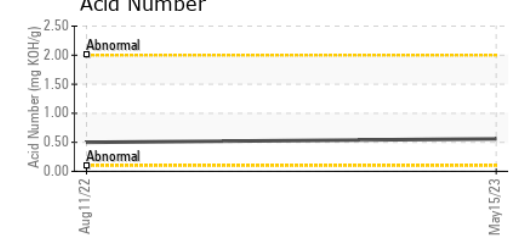
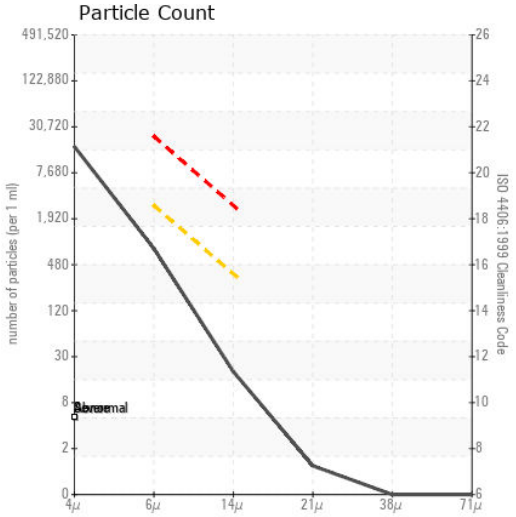
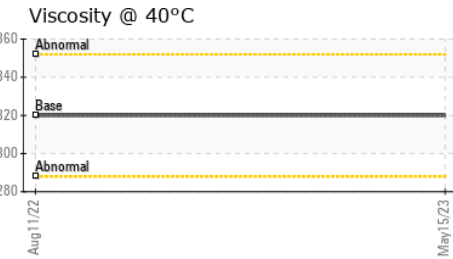
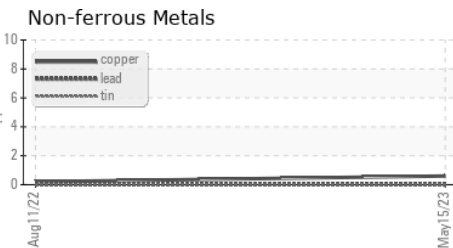
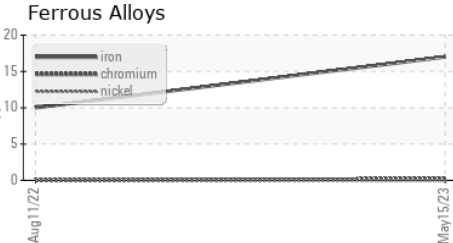
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	---
Yellow Metal	scalar	*Visual	NONE	NONE	---
Precipitate	scalar	*Visual	NONE	NONE	---
Silt	scalar	*Visual	NONE	NONE	---
Debris	scalar	*Visual	NONE	NONE	---
Sand/Dirt	scalar	*Visual	NONE	NONE	---
Appearance	scalar	*Visual	NORML	NORML	---
Odor	scalar	*Visual	NORML	NORML	---
Emulsified Water	scalar	*Visual	>0.05	NEG	---
Free Water	scalar	*Visual		NEG	---

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

SAMPLE IMAGES	method	limit/base	current	history1	history2
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## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : NX05867855 **Received** : 08 Jun 2023  
**Lab Number** : 05867855 **Diagnosed** : 11 Jun 2023  
**Unique Number** : 10507639 **Diagnostician** : 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)