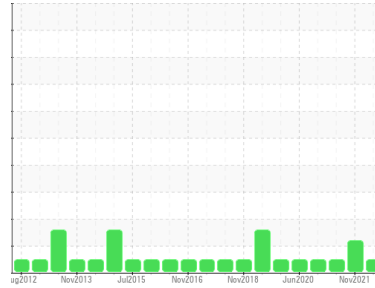




# OIL ANALYSIS REPORT

Sample Rating Trend



**NORMAL**



Area  
**HINO [600380366]**

Machine Id  
**33WEA81859**

Component  
**Wind Turbine Gearbox**

Fluid  
**CASTROL OPTIGEAR SYNTHETIC X 320 (110 GAL)**

## 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 component. The amount and size of particulates present in the system is 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>NX05928235</b>	NX05428524	NX05387409
Sample Date	Client Info		<b>01 Aug 2023</b>	17 Nov 2021	12 Aug 2021
Machine Age	hrs	Client Info	<b>0</b>	0	0
Oil Age	hrs	Client Info	<b>0</b>	0	0
Oil Changed	Client Info		<b>N/A</b>	N/A	N/A
Sample Status			<b>NORMAL</b>	ABNORMAL	NORMAL

## WEAR METALS

	method	limit/base	current	history1	history2	
PQ	ASTM D8184	>80	<b>17</b>	17	17	
Iron	ppm	ASTM D5185m	>150	<b>5</b>	2	<1
Chromium	ppm	ASTM D5185m	>5	<b>0</b>	0	<1
Nickel	ppm	ASTM D5185m	>10	<b>0</b>	0	<1
Titanium	ppm	ASTM D5185m	>10	<b>0</b>	0	0
Silver	ppm	ASTM D5185m		<b>0</b>	<1	0
Aluminum	ppm	ASTM D5185m	>10	<b>&lt;1</b>	0	6
Lead	ppm	ASTM D5185m	>20	<b>0</b>	<1	<1
Copper	ppm	ASTM D5185m	>50	<b>2</b>	2	2
Tin	ppm	ASTM D5185m	>10	<b>0</b>	0	0
Antimony	ppm	ASTM D5185m	>5	<b>---</b>	0	1
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	0
Cadmium	ppm	ASTM D5185m		<b>0</b>	0	0

## ADDITIVES

	method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m		<b>0</b>	1	<1
Barium	ppm	ASTM D5185m		<b>0</b>	1	0
Molybdenum	ppm	ASTM D5185m	1150	<b>900</b>	563	578
Manganese	ppm	ASTM D5185m		<b>0</b>	<1	0
Magnesium	ppm	ASTM D5185m		<b>6</b>	2	5
Calcium	ppm	ASTM D5185m	2000	<b>1714</b>	939	1245
Phosphorus	ppm	ASTM D5185m	400	<b>351</b>	276	249
Zinc	ppm	ASTM D5185m	0	<b>0</b>	0	13
Sulfur	ppm	ASTM D5185m	1850	<b>2373</b>	1308	1965

## CONTAMINANTS

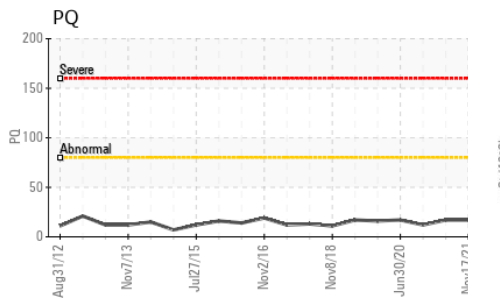
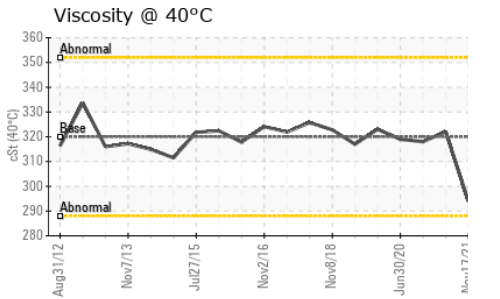
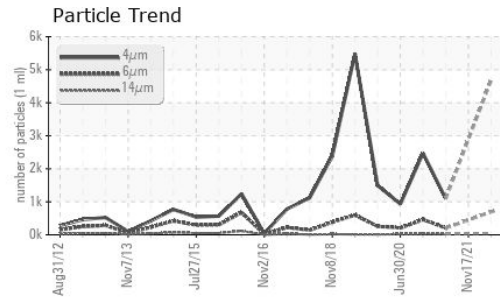
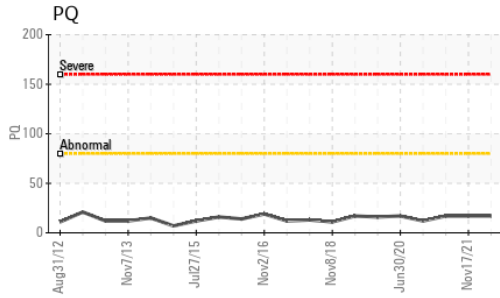
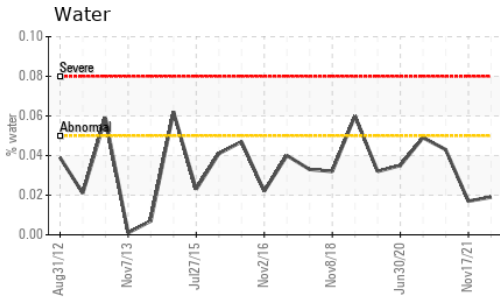
	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m	>50	<b>10</b>	9	3
Sodium	ppm	ASTM D5185m	>20	<b>2</b>	2	6
Potassium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	<1	<1
Water	%	ASTM D6304	>0.05	<b>0.019</b>	0.017	0.043
ppm Water	ppm	ASTM D6304	>500	<b>194.8</b>	177.3	432.5

## FLUID CLEANLINESS

	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		<b>4682</b>	---	1098
Particles >6µm	ASTM D7647	>2500	<b>696</b>	---	205
Particles >14µm	ASTM D7647	>320	<b>42</b>	---	23
Particles >21µm	ASTM D7647	>80	<b>9</b>	---	5
Particles >38µm	ASTM D7647	>20	<b>2</b>	---	0
Particles >71µm	ASTM D7647	>4	<b>2</b>	---	0
Oil Cleanliness	ISO 4406 (c)	>--/18/15	<b>19/17/13</b>	---	17/15/12



# OIL ANALYSIS REPORT



FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	1.6	<b>1.00</b>	0.733	0.826

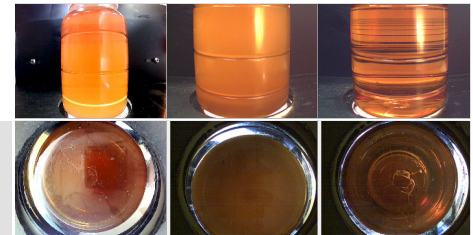
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	<b>LIGHT</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Precipitate	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>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

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	320	<b>331</b>	294	322

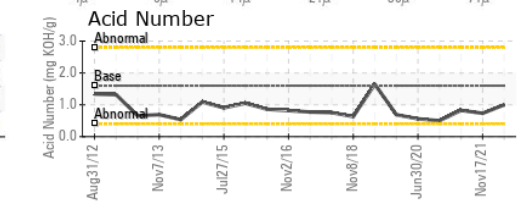
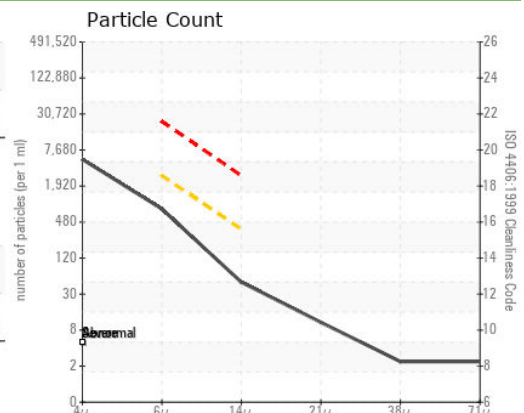
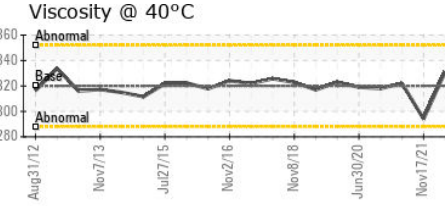
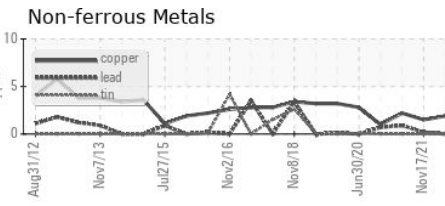
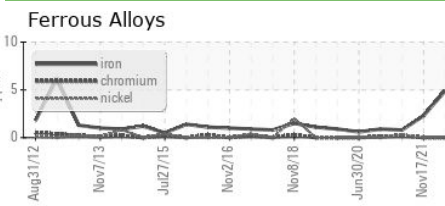
SAMPLE IMAGES		method	limit/base	current	history1	history2
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Color

Bottom



## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : NX05928235 **Received** : 18 Aug 2023  
**Lab Number** : **05928235** **Diagnosed** : 22 Aug 2023  
**Unique Number** : 10608182 **Diagnostician** : Jonathan Hester  
**Test Package** : IND 2 ( Additional Tests: KF, PQ, PrtCount )

**NORDEX USA - HIGHLAND & HIGHLAND NORTH**  
 300 SOUTH WACKER DRIVE, SUITE 1500  
 CHICAGO, IL  
 US 60606  
 Contact: Robert Warner  
 rwarner@everpower.com

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)

T: x:  
 F: x: