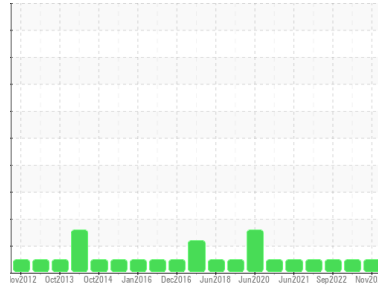




# OIL ANALYSIS REPORT

Sample Rating Trend



**NORMAL**



Area  
**RIPPEY [200005325]**  
 Machine Id  
**82218 SITE 17**

Component  
**Wind Turbine Gearbox**  
 Fluid  
**CASTROL OPTIGEAR SYNTHETIC X 320 (340 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>NX06027158</b>	NX05999841	NX05672237
Sample Date	Client Info	<b>06 Nov 2023</b>	26 Jul 2023	27 Sep 2022
Machine Age	hrs	Client Info	<b>0</b>	0
Oil Age	hrs	Client Info	<b>0</b>	0
Oil Changed	Client Info	<b>N/A</b>	N/A	N/A
Sample Status		<b>NORMAL</b>	NORMAL	NORMAL

## WEAR METALS

method	limit/base	current	history1	history2		
PQ	ASTM D8184	>80	<b>16</b>	9	9	
Iron	ppm	ASTM D5185m	>150	<b>21</b>	21	19
Chromium	ppm	ASTM D5185m	>5	<b>&lt;1</b>	<1	<1
Nickel	ppm	ASTM D5185m	>10	<b>&lt;1</b>	0	0
Titanium	ppm	ASTM D5185m	>10	<b>0</b>	0	0
Silver	ppm	ASTM D5185m		<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>10	<b>6</b>	5	0
Lead	ppm	ASTM D5185m	>20	<b>0</b>	0	0
Copper	ppm	ASTM D5185m	>50	<b>2</b>	<1	1
Tin	ppm	ASTM D5185m	>10	<b>0</b>	0	0
Antimony	ppm	ASTM D5185m	>5	<b>---</b>	---	---
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>	42	<1
Barium	ppm	ASTM D5185m		<b>0</b>	0	6
Molybdenum	ppm	ASTM D5185m	1150	<b>802</b>	776	785
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m		<b>6</b>	8	5
Calcium	ppm	ASTM D5185m	2000	<b>1582</b>	1594	1580
Phosphorus	ppm	ASTM D5185m	400	<b>321</b>	362	332
Zinc	ppm	ASTM D5185m	0	<b>0</b>	0	2
Sulfur	ppm	ASTM D5185m	1850	<b>1820</b>	1787	1916

## CONTAMINANTS

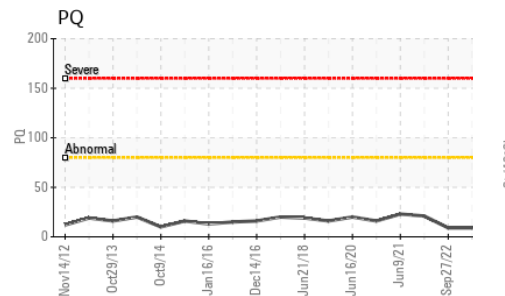
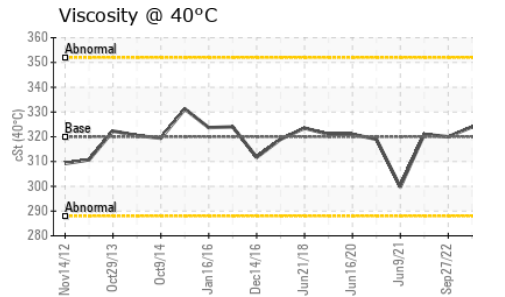
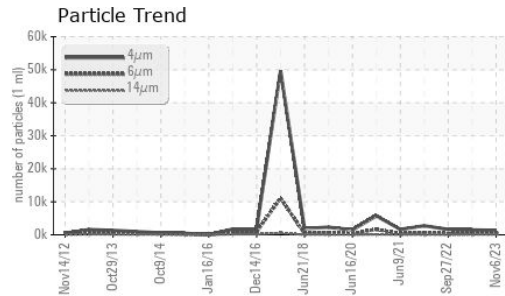
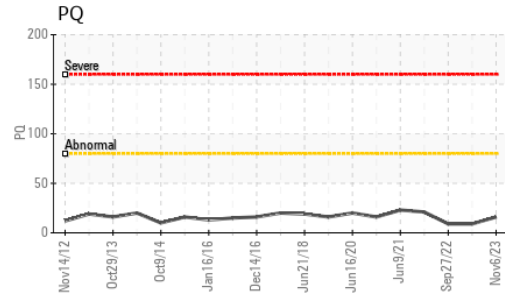
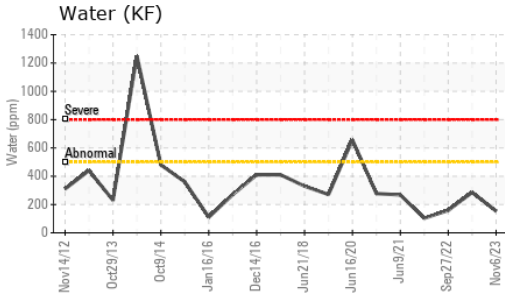
method	limit/base	current	history1	history2		
Silicon	ppm	ASTM D5185m	>50	<b>11</b>	12	9
Sodium	ppm	ASTM D5185m	>20	<b>7</b>	10	8
Potassium	ppm	ASTM D5185m	>20	<b>2</b>	0	3
Water	%	ASTM D6304	>0.05	<b>0.015</b>	0.028	0.015
ppm Water	ppm	ASTM D6304	>500	<b>154</b>	285.7	158.6

## FLUID CLEANLINESS

method	limit/base	current	history1	history2	
Particles >4µm	ASTM D7647		<b>1359</b>	1481	1641
Particles >6µm	ASTM D7647	>2500	<b>467</b>	524	327
Particles >14µm	ASTM D7647	>320	<b>48</b>	68	19
Particles >21µm	ASTM D7647	>80	<b>13</b>	21	3
Particles >38µm	ASTM D7647	>20	<b>0</b>	1	0
Particles >71µm	ASTM D7647	>4	<b>0</b>	0	0
Oil Cleanliness	ISO 4406 (c)	>--/18/15	<b>18/16/13</b>	18/16/13	18/16/11



# OIL ANALYSIS REPORT

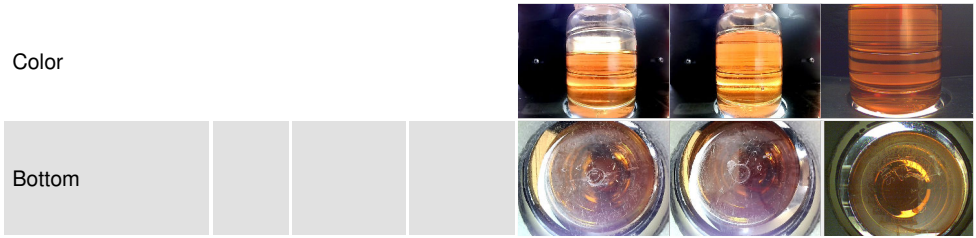


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	1.6	<b>0.51</b>	0.49	0.52

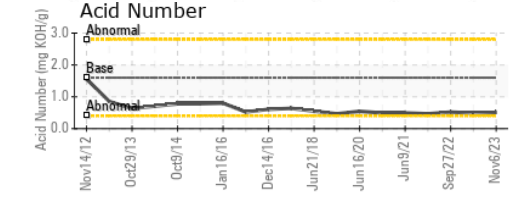
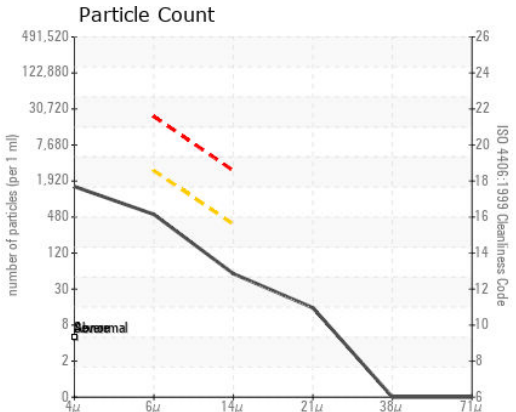
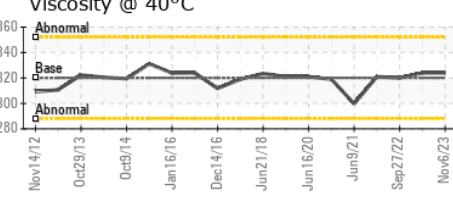
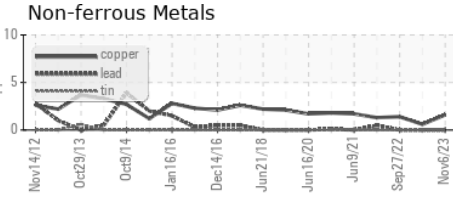
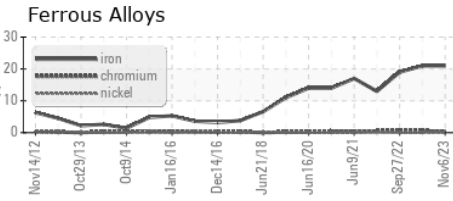
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Precipitate	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	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>324</b>	324	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.** : NX06027158 **Received** : 06 Dec 2023  
**Lab Number** : **06027158** **Diagnosed** : 11 Dec 2023  
**Unique Number** : 10776949 **Diagnostician** : Jonathan Hester  
**Test Package** : IND 2 ( Additional Tests: KF, PQ, PrtCount )

**NORDEX USA - Chicago**  
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 CHICAGO, IL  
 US 60606  
 Contact: DEVIN LINEHAN  
 DLinehan@nordex-online.com  
 T: (312)386-4124  
 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)