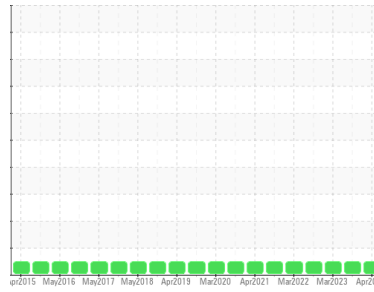




# OIL ANALYSIS REPORT

Sample Rating Trend



**NORMAL**



Area  
**FOUR MILE RIDGE [200009521]**  
 Machine Id  
**83312 SITE 4**  
 Component  
**Wind Turbine Gearbox**  
 Fluid  
**CASTROL OPTIGEAR SYNTHETIC X 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 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>NX012306</b>	NX012334	NX012347
Sample Date	Client Info		<b>09 Apr 2024</b>	20 Feb 2024	08 Mar 2023
Machine Age	hrs	Client Info	<b>72652</b>	69222	63338
Oil Age	hrs	Client Info	<b>72652</b>	69222	63338
Oil Changed	Client Info		<b>Not Changed</b>	Not Changd	Not Changed
Sample Status			<b>NORMAL</b>	NORMAL	NORMAL

## WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184	>80	<b>17</b>	16	11
Iron	ppm	ASTM D5185m	>150	<b>6</b>	3
Chromium	ppm	ASTM D5185m	>5	<b>&lt;1</b>	0
Nickel	ppm	ASTM D5185m	>10	<b>&lt;1</b>	<1
Titanium	ppm	ASTM D5185m	>10	<b>&lt;1</b>	0
Silver	ppm	ASTM D5185m		<b>0</b>	0
Aluminum	ppm	ASTM D5185m	>10	<b>5</b>	5
Lead	ppm	ASTM D5185m	>20	<b>0</b>	0
Copper	ppm	ASTM D5185m	>50	<b>1</b>	<1
Tin	ppm	ASTM D5185m	>10	<b>&lt;1</b>	<1
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	0
Cadmium	ppm	ASTM D5185m		<b>&lt;1</b>	0

## ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		<b>0</b>	21
Barium	ppm	ASTM D5185m		<b>3</b>	1
Molybdenum	ppm	ASTM D5185m	1150	<b>556</b>	563
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1
Magnesium	ppm	ASTM D5185m		<b>4</b>	6
Calcium	ppm	ASTM D5185m	2000	<b>1105</b>	1067
Phosphorus	ppm	ASTM D5185m	400	<b>289</b>	299
Zinc	ppm	ASTM D5185m	0	<b>0</b>	0
Sulfur	ppm	ASTM D5185m	1850	<b>1603</b>	1532

## CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>50	<b>8</b>	7
Sodium	ppm	ASTM D5185m	>20	<b>6</b>	6
Potassium	ppm	ASTM D5185m	>20	<b>2</b>	1
Water	%	ASTM D6304	>0.05	<b>0.017</b>	0.020
ppm Water	ppm	ASTM D6304	>500	<b>170</b>	205

## FLUID CLEANLINESS

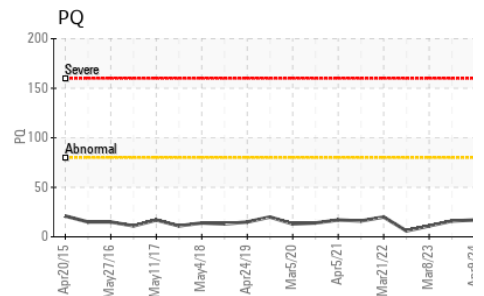
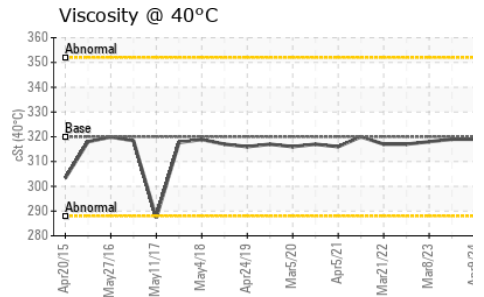
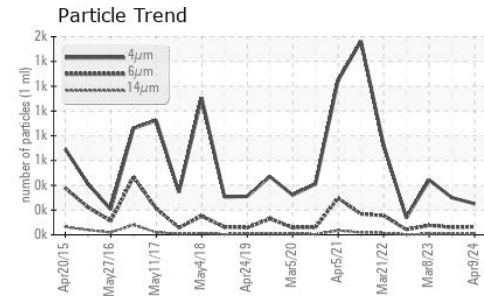
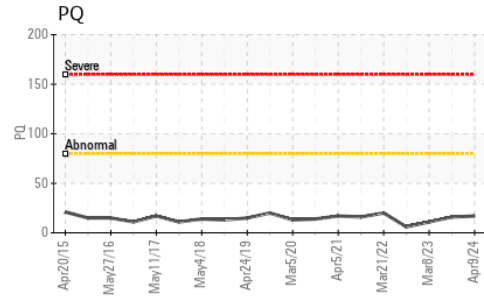
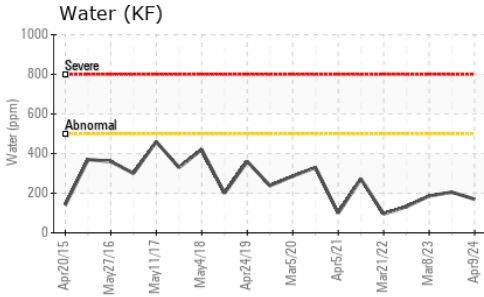
	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		<b>251</b>	300	443
Particles >6µm	ASTM D7647	>2500	<b>64</b>	60	76
Particles >14µm	ASTM D7647	>320	<b>7</b>	9	6
Particles >21µm	ASTM D7647	>80	<b>2</b>	3	1
Particles >38µm	ASTM D7647	>20	<b>0</b>	0	0
Particles >71µm	ASTM D7647	>4	<b>0</b>	0	0
Oil Cleanliness	ISO 4406 (c)	>--/18/15	<b>15/13/10</b>	15/13/10	16/13/10

## FLUID DEGRADATION

	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	1.6	<b>0.763</b>	0.09



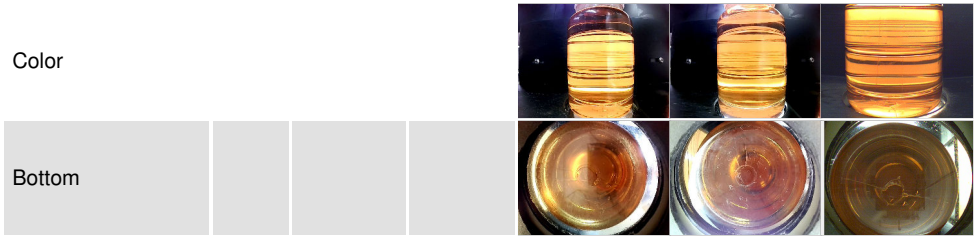
# OIL ANALYSIS REPORT



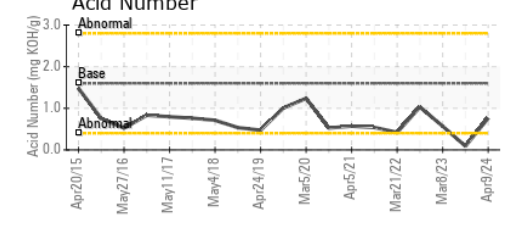
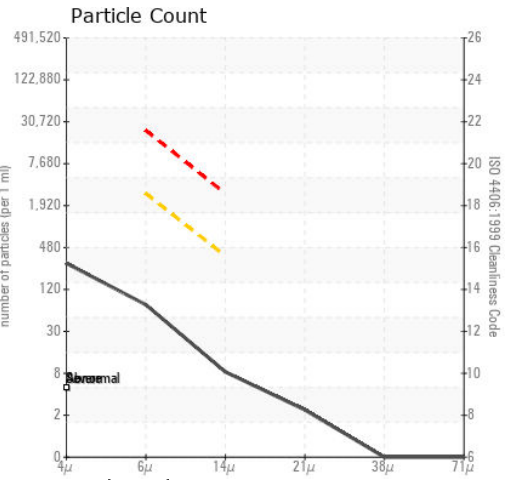
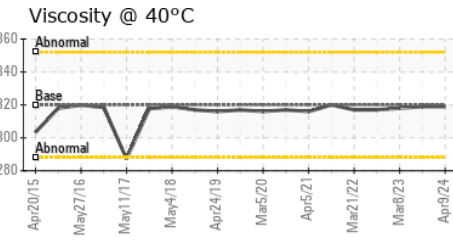
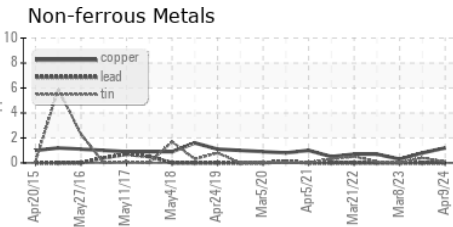
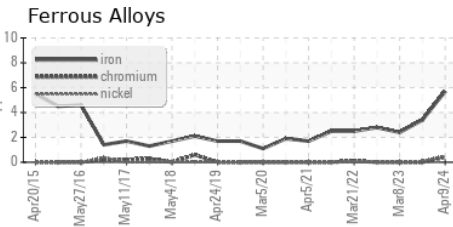
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance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

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445 320	319	319	318

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



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : NX012306  
**Lab Number** : 06211616  
**Unique Number** : 11084480  
**Test Package** : IND 2 ( Additional Tests: KF, PQ, PrtCount )  
**Received** : 17 Jun 2024  
**Tested** : 18 Jun 2024  
**Diagnosed** : 18 Jun 2024 - Angela Borella

**NORDEX USA - Chicago**  
 300 SOUTH WACKER DRIVE, SUITE 1500  
 CHICAGO, IL 60606  
 Contact: DEVIN LINEHAN  
 DLinehan@nordex-online.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)