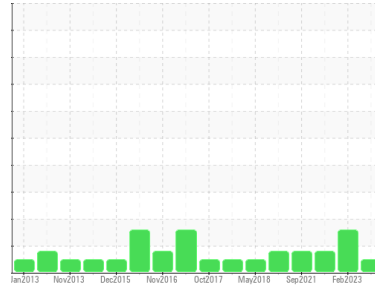




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Area
BEEBE [2000060080]

Machine Id
07WEA82339

Component
Wind Turbine Gearbox

Fluid
CASTROL OPTIGEAR SYNTHETIC X 320 (4 LTR)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

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		NX06146579	NX05798673	NX05621777
Sample Date	Client Info		20 Mar 2024	06 Feb 2023	18 Aug 2022
Machine Age	hrs	Client Info	97529	73591	70207
Oil Age	hrs	Client Info	0	0	0
Oil Changed	Client Info		N/A	N/A	N/A
Sample Status			NORMAL	ABNORMAL	ABNORMAL

WEAR METALS

	method	limit/base	current	history1	history2	
PQ	ASTM D8184	>80	21	63	36	
Iron	ppm	ASTM D5185m	>150	31	237	192
Chromium	ppm	ASTM D5185m	>5	<1	2	1
Nickel	ppm	ASTM D5185m	>10	1	<1	2
Titanium	ppm	ASTM D5185m	>10	<1	<1	0
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>10	7	1	<1
Lead	ppm	ASTM D5185m	>20	<1	0	0
Copper	ppm	ASTM D5185m	>50	1	2	2
Tin	ppm	ASTM D5185m	>10	<1	0	0
Antimony	ppm	ASTM D5185m	>5	---	---	---
Vanadium	ppm	ASTM D5185m		<1	0	<1
Cadmium	ppm	ASTM D5185m		1	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		0	0
Barium	ppm	ASTM D5185m		4	2
Molybdenum	ppm	ASTM D5185m	1150	943	832
Manganese	ppm	ASTM D5185m		1	2
Magnesium	ppm	ASTM D5185m		7	13
Calcium	ppm	ASTM D5185m	2000	1785	1644
Phosphorus	ppm	ASTM D5185m	400	359	322
Zinc	ppm	ASTM D5185m	0	<1	5
Sulfur	ppm	ASTM D5185m	1850	2017	1711

CONTAMINANTS

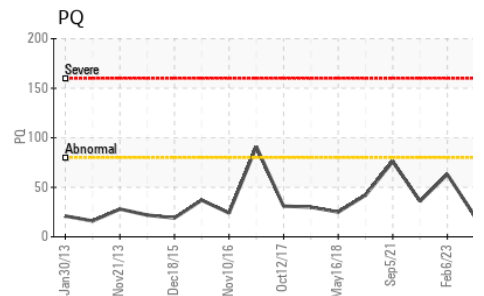
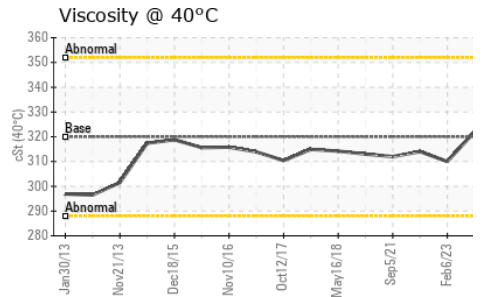
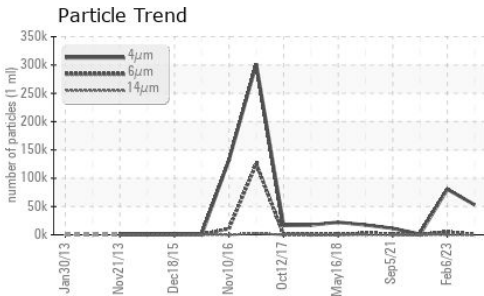
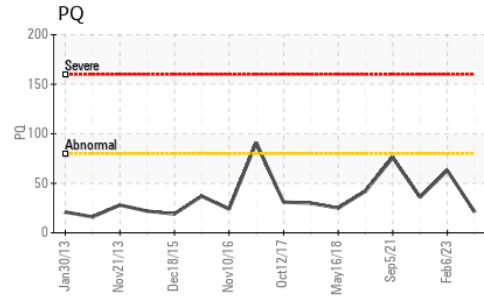
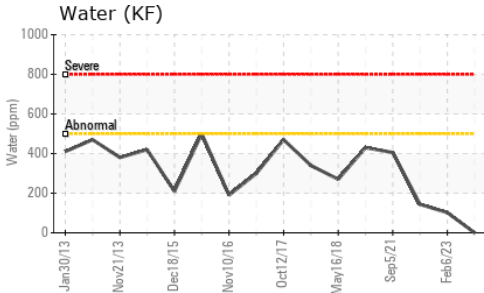
	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>50	14	12
Sodium	ppm	ASTM D5185m	>20	0	0
Potassium	ppm	ASTM D5185m	>20	1	<1
Water	%	ASTM D6304	>0.05	0.00	0.010
ppm Water	ppm	ASTM D6304	>500	0	102.1

FLUID CLEANLINESS

	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		52965	80600	1116
Particles >6µm	ASTM D7647	>2500	600	4999	315
Particles >14µm	ASTM D7647	>320	10	27	35
Particles >21µm	ASTM D7647	>80	4	4	7
Particles >38µm	ASTM D7647	>20	0	1	0
Particles >71µm	ASTM D7647	>4	0	1	0
Oil Cleanliness	ISO 4406 (c)	>--/18/15	23/16/10	24/19/12	17/15/12



OIL ANALYSIS REPORT

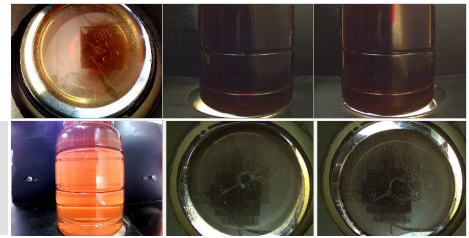


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	1.6	1.05	0.51	0.52

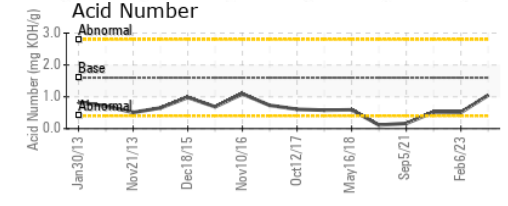
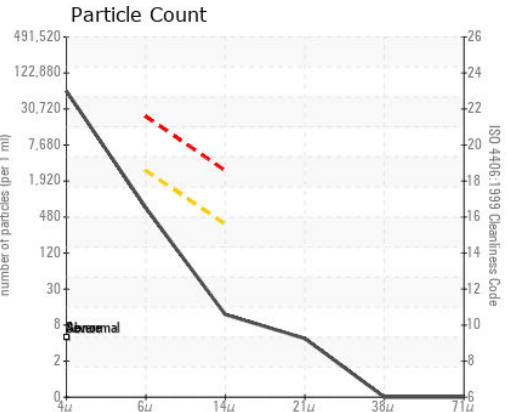
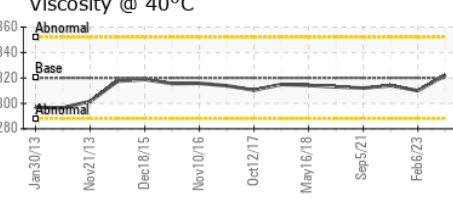
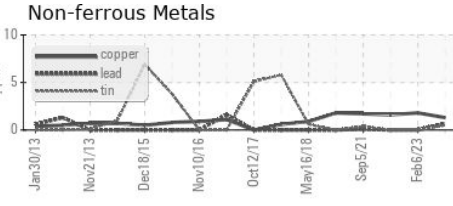
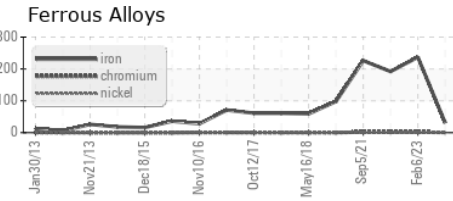
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	LIGHT	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	LIGHT	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.05	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	322	310	314

SAMPLE IMAGES		method	limit/base	current	history1	history2
Color						
Bottom						



GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : NX06146579
Lab Number : 06146579
Unique Number : 10976657
Test Package : IND 2 (Additional Tests: KF, PQ, PrtCount)
Received : 11 Apr 2024
Tested : 12 Apr 2024
Diagnosed : 15 Apr 2024 - Angela Borella

NORDEX USA - BEEBE
 1200 S COUNTY FARM RD
 ITHACA, MI
 US 48847
 Contact: TUCKER WITT
 tucker.witt@constellation.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)