



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	ATTENTION
FLUID CONDITION	NORMAL

Area
BEEBE [2000060080]

Machine Id
09WEA82313

Component
Wind Turbine Gearbox

Fluid
CASTROL OPTIGEAR SYNTHETIC X 320 (4 LTR)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		NX06146580	NX05798674	NX05621785
Sample Date		Client Info		05 Apr 2024	14 Feb 2023	18 Aug 2022
Machine Age	hrs	Client Info		96876	71892	68497
Oil Age	hrs	Client Info		0	0	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Filter Changed		Client Info		N/A	N/A	N/A
Sample Status				ATTENTION	ABNORMAL	ABNORMAL

WEAR

All component wear rates are normal.

PQ		ASTM D8184	>80	17	60	19
Iron	ppm	ASTM D5185m	>150	19	▲ 195	▲ 175
Chromium	ppm	ASTM D5185m	>5	<1	1	1
Nickel	ppm	ASTM D5185m	>10	<1	<1	2
Titanium	ppm	ASTM D5185m	>10	<1	0	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	1	1
Tin	ppm	ASTM D5185m	>10	<1	0	0
Vanadium	ppm	ASTM D5185m		<1	0	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	LIGHT
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

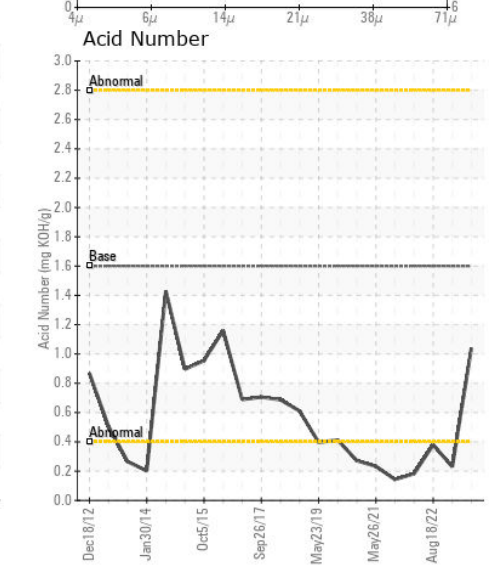
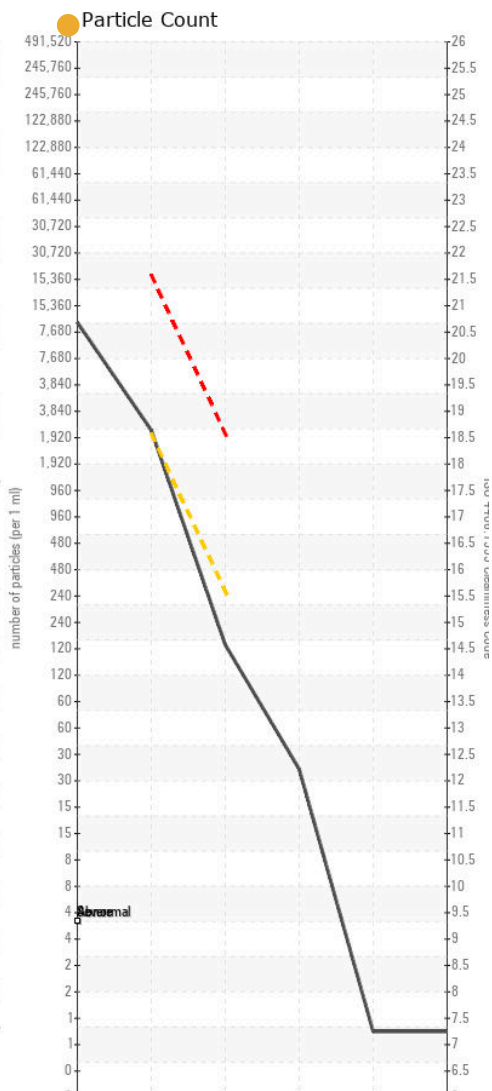
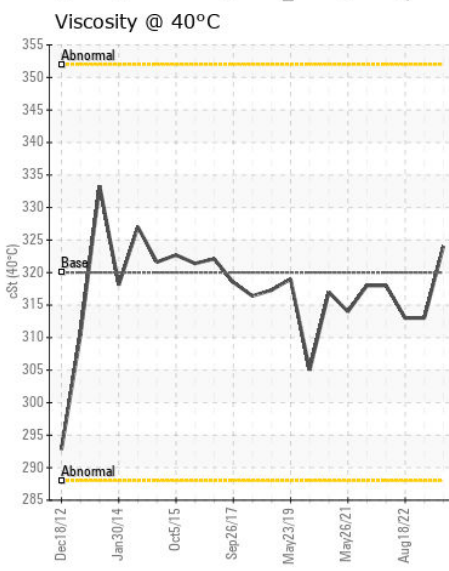
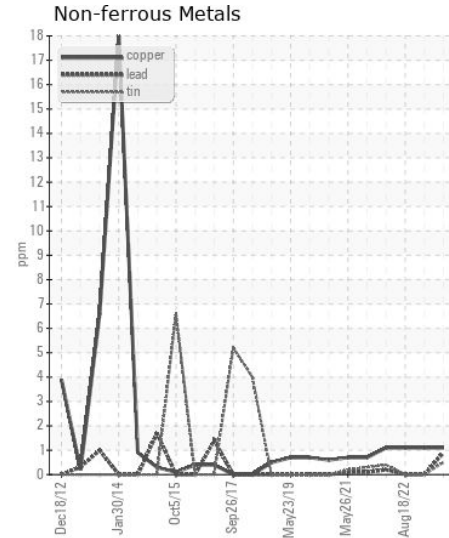
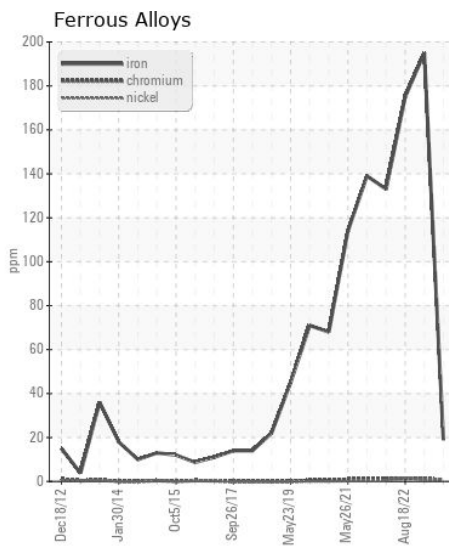
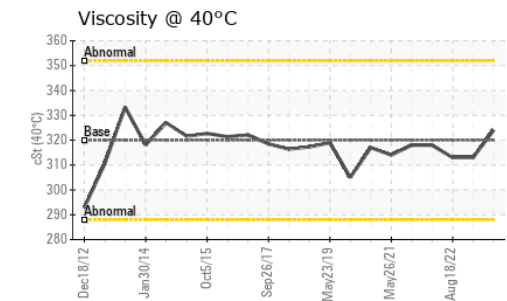
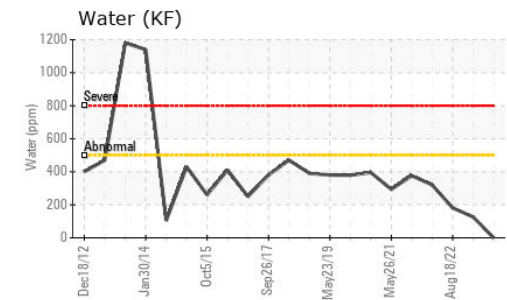
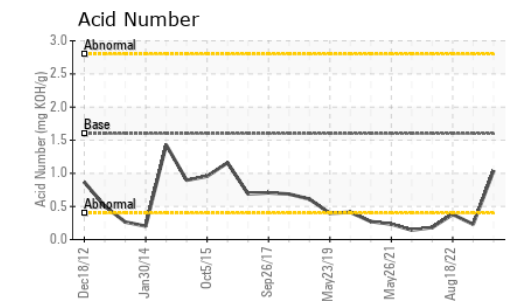
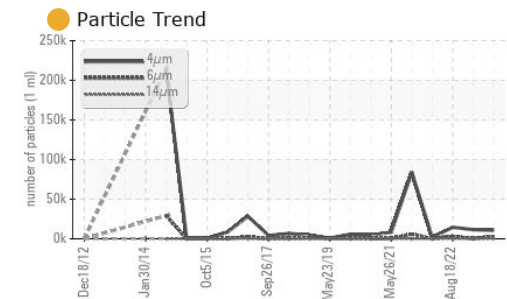
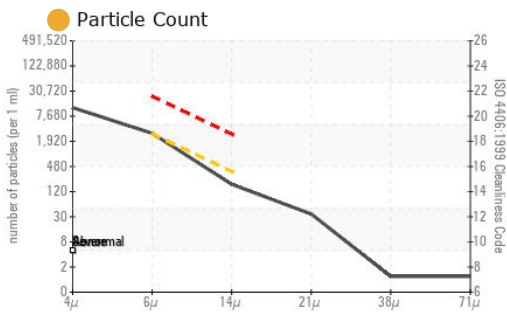
There is a moderate amount of silt (particulates < 14 microns in size) present in the oil.

Silicon	ppm	ASTM D5185m	>50	14	13	12
Potassium	ppm	ASTM D5185m	>20	1	<1	2
Water	%	ASTM D6304	>0.05	0.00	0.012	0.018
ppm Water	ppm	ASTM D6304	>500	0	126.3	181.5
Particles >4µm		ASTM D7647		10743	11552	14554
Particles >6µm		ASTM D7647	>2500	● 2616	301	● 2982
Particles >14µm		ASTM D7647	>320	158	9	152
Particles >21µm		ASTM D7647	>80	31	1	30
Particles >38µm		ASTM D7647	>20	1	0	0
Particles >71µm		ASTM D7647	>4	1	0	0
Oil Cleanliness		ISO 4406 (c)	--/18/15	● 21/19/14	21/15/10	● 21/19/14
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

FLUID CONDITION

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m	>20	0	0	7
Boron	ppm	ASTM D5185m		0	0	0
Barium	ppm	ASTM D5185m		4	2	0
Molybdenum	ppm	ASTM D5185m	1150	923	813	841
Manganese	ppm	ASTM D5185m		1	2	2
Magnesium	ppm	ASTM D5185m		7	15	15
Calcium	ppm	ASTM D5185m	2000	1763	1634	1630
Phosphorus	ppm	ASTM D5185m	400	354	314	331
Zinc	ppm	ASTM D5185m	0	<1	5	4
Sulfur	ppm	ASTM D5185m	1850	2005	1685	2000
Acid Number (AN)	mg KOH/g	ASTM D8045	1.6	1.04	0.23	0.38
Visc @ 40°C	cSt	ASTM D445	320	324	313	313



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : NX06146580 **Received** : 11 Apr 2024
Lab Number : 06146580 **Tested** : 12 Apr 2024
Unique Number : 10976658 **Diagnosed** : 15 Apr 2024 - Angela Borella
Test Package : IND 2 (Additional Tests: KF, PQ, PrtCount)
 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)

NORDEX USA - BEEBE
 1200 S COUNTY FARM RD
 ITHACA, MI
 US 48847
 Contact: TUCKER WITT
 tucker.witt@constellation.com
 T:
 F: (312)386-7102