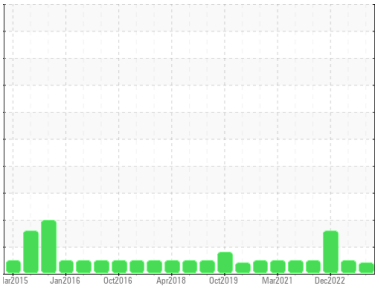
OIL ANALYSIS REPORT

Sample Rating Trend



VIS DEBRIS

Area
FOUR MILE RIDGE [200005315]
Machine Id
83440 SITE 15
Component
Wind Turbine Gearbox
Fluid
CASTROL OPTIGEAR SYNTHETIC X 320 (--- LTR)

DIAGNOSIS

Recommendation

We recommend you service the filters on this component if applicable. Resample at the next service interval to monitor. We were unable to perform a particle count due to a high concentration of particles present in this sample.

Wear

All component wear rates are normal.

Contamination

Moderate concentration of visible dirt/debris present in the oil.

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		**NX012359**	NX004210	NX010430
Sample Date		Client Info		**05 Oct 2023**	03 Apr 2023	08 Dec 2022
Machine Age	hrs	Client Info		**68284**	62805	62643
Oil Age	hrs	Client Info		**68284**	62805	62643
Oil Changed		Client Info		**Not Changd**	Not Changd	Not Changd
Sample Status				**ABNORMAL**	NORMAL	ABNORMAL

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184	>80	**13**	14	7
Iron	ppm	ASTM D5185m	>150	**4**	1	2
Chromium	ppm	ASTM D5185m	>5	**0**	0	0
Nickel	ppm	ASTM D5185m	>10	**0**	0	0
Titanium	ppm	ASTM D5185m	>10	**0**	0	0
Silver	ppm	ASTM D5185m		**0**	0	0
Aluminum	ppm	ASTM D5185m	>10	**7**	<1	0
Lead	ppm	ASTM D5185m	>20	**0**	0	<1
Copper	ppm	ASTM D5185m	>50	**1**	<1	2
Tin	ppm	ASTM D5185m	>10	**<1**	0	0
Vanadium	ppm	ASTM D5185m		**<1**	0	<1
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**36**	0	47
Barium	ppm	ASTM D5185m		**3**	0	2
Molybdenum	ppm	ASTM D5185m	1150	**918**	649	740
Manganese	ppm	ASTM D5185m		**<1**	<1	<1
Magnesium	ppm	ASTM D5185m		**10**	9	7
Calcium	ppm	ASTM D5185m	2000	**1768**	1234	1416
Phosphorus	ppm	ASTM D5185m	400	**367**	321	319
Zinc	ppm	ASTM D5185m	0	**0**	0	1
Sulfur	ppm	ASTM D5185m	1850	**2048**	1532	1925

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>50	**11**	8	9
Sodium	ppm	ASTM D5185m	>20	**1**	5	7
Potassium	ppm	ASTM D5185m	>20	**<1**	0	0
Water	%	ASTM D6304	>0.05	**0.023**	0.017	0.009
ppm Water	ppm	ASTM D6304	>500	**231**	174.5	90.9

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647		**---**	4778	50068
Particles >6µm		ASTM D7647	>2500	**---**	849	▲ 15783
Particles >14µm		ASTM D7647	>320	**---**	57	▲ 683
Particles >21µm		ASTM D7647	>80	**---**	14	▲ 95
Particles >38µm		ASTM D7647	>20	**---**	1	6
Particles >71µm		ASTM D7647	>4	**---**	0	0
Oil Cleanliness		ISO 4406 (c)	>--/18/15	**---**	19/17/13	▲ 23/21/17

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	1.6	**1.19**	0.67	1.72

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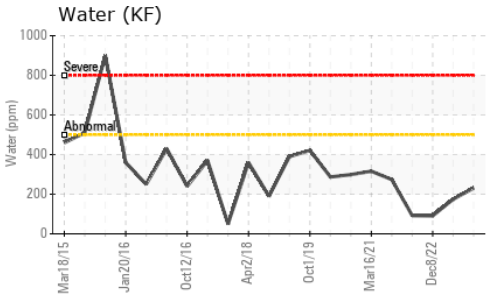
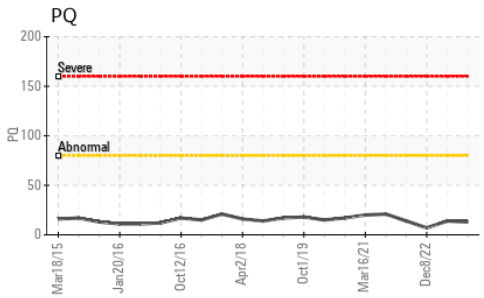
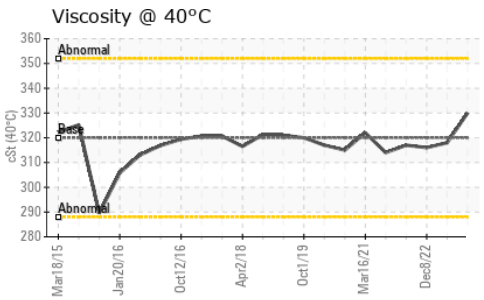
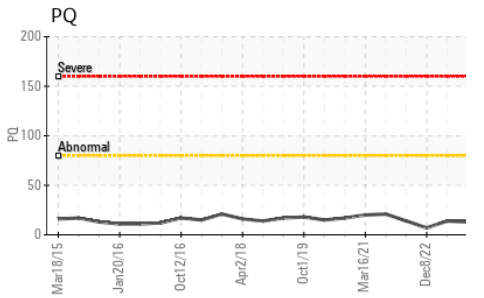






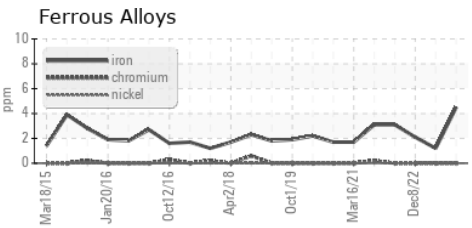


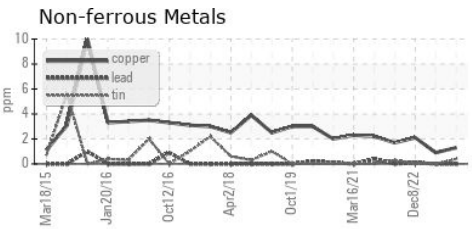
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	▲ **MODER**	NONE	NONE
Sand/Dirt	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

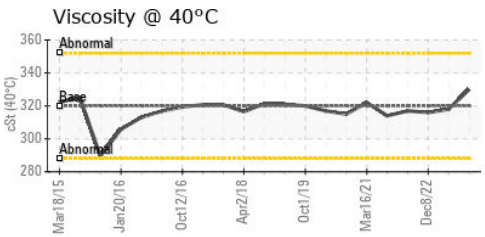
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	320	**330**	318	316

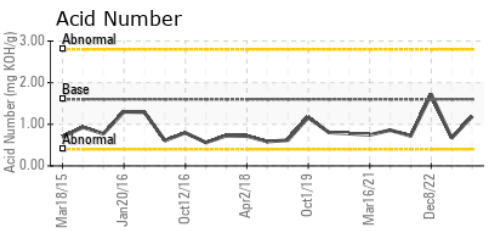
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

GRAPHS









Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : NX012359
Lab Number : 06097723
Unique Number : 10890576
Test Package : IND 2 (Additional Tests: KF, PQ, PrtCount)
Received : 22 Feb 2024
Tested : 25 Feb 2024
Diagnosed : 25 Feb 2024 - Doug Bogart

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)

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