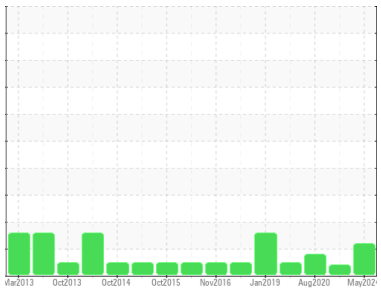
OIL ANALYSIS REPORT

Sample Rating Trend



ADDITIVES

Area
EVA CREEK
Machine Id
WEC 10 - 91976 (S/N 32634)
Component
Wind Turbine Gearbox
Fluid
CASTROL OPTIGEAR SYNTHETIC A ISO 320 (475 GAL)

DIAGNOSIS

Recommendation
We recommend an early resample to monitor this condition.

Wear
All component wear rates are normal.

Contamination
There is a high amount of silt (particulates < 14 microns in size) present in the oil. Calcium and/or magnesium levels higher than normal indicating possible contamination

Fluid Condition
Additive levels indicate the addition of a different brand, or type of oil. Confirm oil type. The AN level is acceptable for this fluid.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0634825**	WC0544193	WC0373047
Sample Date		Client Info		**01 May 2024**	04 Jun 2021	18 Aug 2020
Machine Age	hrs	Client Info		**29813**	69667	68277
Oil Age	hrs	Client Info		**0**	69667	68277
Oil Changed		Client Info		**N/A**	Not Changd	Not Changd
Sample Status				**ABNORMAL**	ABNORMAL	ABNORMAL

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184	>80	**19**	25	20
Iron	ppm	ASTM D5185m	>70	**26**	144	131
Chromium	ppm	ASTM D5185m	>3	**0**	2	2
Nickel	ppm	ASTM D5185m	>2	**0**	0	<1
Titanium	ppm	ASTM D5185m	>10	**0**	<1	0
Silver	ppm	ASTM D5185m		**0**	0	0
Aluminum	ppm	ASTM D5185m	>9	**16**	1	14
Lead	ppm	ASTM D5185m	>9	**0**	<1	1
Copper	ppm	ASTM D5185m	>25	**<1**	3	3
Tin	ppm	ASTM D5185m	>9	**<1**	<1	0
Antimony	ppm	ASTM D5185m	>5	**---**	0	6
Vanadium	ppm	ASTM D5185m		**<1**	<1	0
Cadmium	ppm	ASTM D5185m		**0**	<1	0

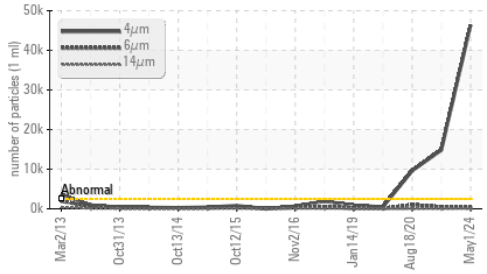
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	**37**	6	<1
Barium	ppm	ASTM D5185m	0	**5**	<1	2
Molybdenum	ppm	ASTM D5185m	1150	**1360**	1253	1109
Manganese	ppm	ASTM D5185m		**<1**	2	2
Magnesium	ppm	ASTM D5185m	1800	**1796**	1936	1730
Calcium	ppm	ASTM D5185m	20	▲ **221**	14	13
Phosphorus	ppm	ASTM D5185m	1450	**1533**	1482	1175
Zinc	ppm	ASTM D5185m	1650	**1634**	1714	1412
Sulfur	ppm	ASTM D5185m	4900	**7339**	5887	4647

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>33	**23**	16	12
Sodium	ppm	ASTM D5185m	>20	**5**	7	6
Potassium	ppm	ASTM D5185m	>20	**0**	4	0
Water	%	ASTM D6304	>.110	**0.012**	0.068	0.040
ppm Water	ppm	ASTM D6304	>1100	**124**	683.9	404.2

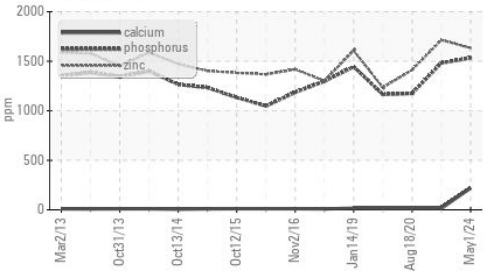
FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>2500	▲ **46331**	▲ 14815	▲ 9581
Particles >6µm		ASTM D7647	>640	**311**	489	● 1008
Particles >14µm		ASTM D7647	>80	**11**	10	6
Particles >21µm		ASTM D7647	>20	**4**	1	2
Particles >38µm		ASTM D7647	>4	**1**	0	0
Particles >71µm		ASTM D7647	>3	**0**	0	0
Oil Cleanliness		ISO 4406 (c)	>18/16/13	▲ **23/15/11**	▲ 21/16/10	▲ 20/17/10

OIL ANALYSIS REPORT

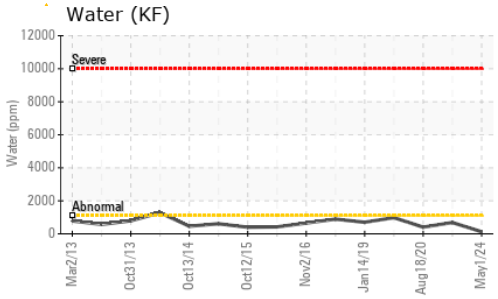
Particle Trend



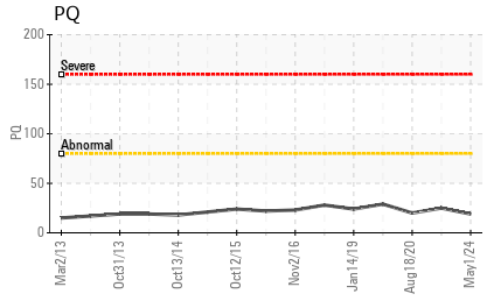
Additives



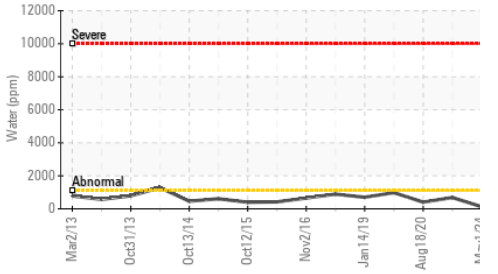
Water (KF)



PQ



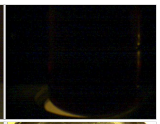
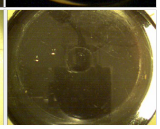
Water (KF)



FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	3.3	**3.11**	2.249	2.705

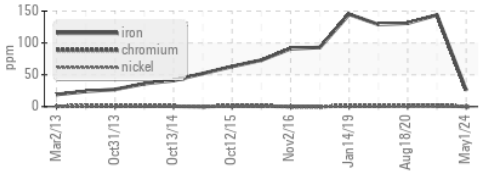
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	LIGHT	NONE
Sand/Dirt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Appearance	scalar	*Visual	NORML	**NORML**	NORML	NORML
Odor	scalar	*Visual	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	*Visual	>.110	**NEG**	NEG	NEG
Free Water	scalar	*Visual		**NEG**	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	305	**334**	332	329

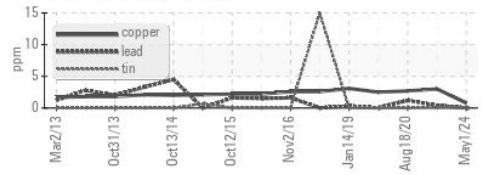
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

GRAPHS

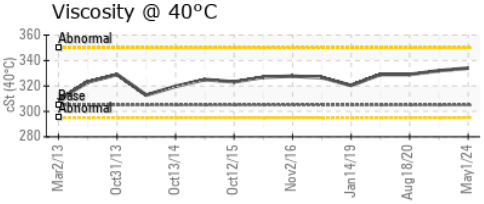
Ferrous Alloys



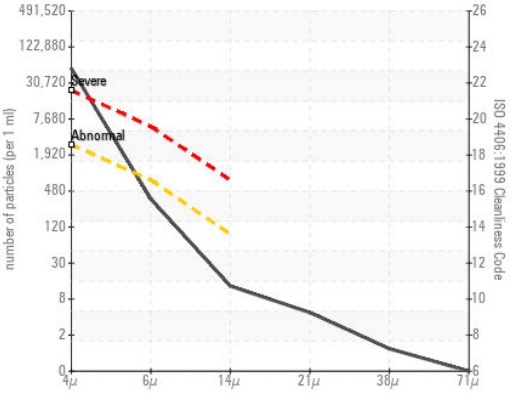
Non-ferrous Metals



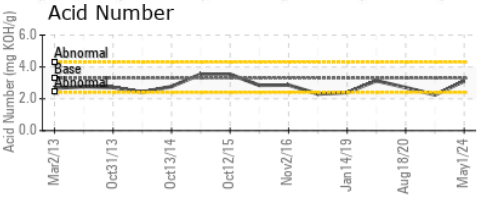
Viscosity @ 40°C



Particle Count



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0634825 **Received** : 10 May 2024
Lab Number : 06176151 **Tested** : 16 May 2024
Unique Number : 11022204 **Diagnosed** : 16 May 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)

GOLDEN VALLEY ELECTRIC
MILE 2.5 HEALY SPUR RD
HEALY, AK
US 99743
Contact: RYAN DEWITT
rjdewitt@gvea.com
T:
F: