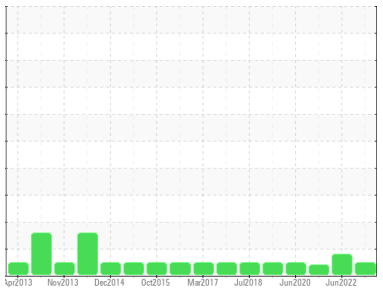
OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Area
EVA CREEK
Machine Id
WEC 14 - 91977 (S/N 26113)
Component
Wind Turbine Gearbox
Fluid
CASTROL OPTIGEAR SYNTHETIC A ISO 320 (475 GAL)

DIAGNOSIS

Recommendation
Resample at the next service interval to monitor.

Wear
All component wear rates are normal for time on oil.

Contamination
The amount and size of particulates present in the system are acceptable. There is no indication of any contamination in the component.

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		**WC0941985**	WC0634818	WC0544197
Sample Date		Client Info		**27 Jun 2024**	01 Jun 2022	29 Jul 2021
Machine Age	hrs	Client Info		**30279**	79043	74129
Oil Age	hrs	Client Info		**30279**	0	74129
Oil Changed		Client Info		**Changed**	N/A	Not Changd
Sample Status				**NORMAL**	ABNORMAL	ATTENTION

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184	>80	**18**	27	36
Iron	ppm	ASTM D5185m	>70	**11**	▲ 245	247
Chromium	ppm	ASTM D5185m	>3	**0**	4	4
Nickel	ppm	ASTM D5185m	>2	**0**	0	<1
Titanium	ppm	ASTM D5185m	>10	**0**	0	<1
Silver	ppm	ASTM D5185m		**0**	<1	0
Aluminum	ppm	ASTM D5185m	>9	**5**	2	2
Lead	ppm	ASTM D5185m	>9	**0**	<1	<1
Copper	ppm	ASTM D5185m	>25	**<1**	6	6
Tin	ppm	ASTM D5185m	>9	**0**	0	<1
Antimony	ppm	ASTM D5185m	>5	**---**	---	0
Vanadium	ppm	ASTM D5185m		**0**	<1	<1
Cadmium	ppm	ASTM D5185m		**0**	0	<1

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	**0**	2	6
Barium	ppm	ASTM D5185m	0	**3**	4	0
Molybdenum	ppm	ASTM D5185m	1150	**1244**	1186	1275
Manganese	ppm	ASTM D5185m		**<1**	4	3
Magnesium	ppm	ASTM D5185m	1800	**1820**	1820	1931
Calcium	ppm	ASTM D5185m	20	**21**	15	17
Phosphorus	ppm	ASTM D5185m	1450	**1497**	1382	1494
Zinc	ppm	ASTM D5185m	1650	**1689**	1638	1729
Sulfur	ppm	ASTM D5185m	4900	**7174**	5768	5956

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>33	**27**	17	16
Sodium	ppm	ASTM D5185m	>20	**2**	6	6
Potassium	ppm	ASTM D5185m	>20	**0**	0	2
Water	%	ASTM D6304	>.110	**0.027**	0.052	0.048
ppm Water	ppm	ASTM D6304	>1100	**273**	524.6	483.8

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>2500	**893**	406	● 3466
Particles >6µm		ASTM D7647	>640	**258**	68	159
Particles >14µm		ASTM D7647	>80	**19**	9	10
Particles >21µm		ASTM D7647	>20	**7**	4	5
Particles >38µm		ASTM D7647	>4	**2**	1	0
Particles >71µm		ASTM D7647	>3	**0**	0	0
Oil Cleanliness		ISO 4406 (c)	>18/16/13	**17/15/11**	16/13/10	● 19/14/10

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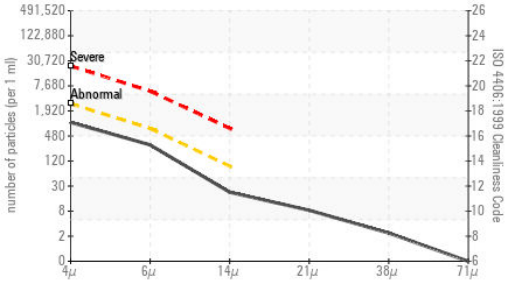
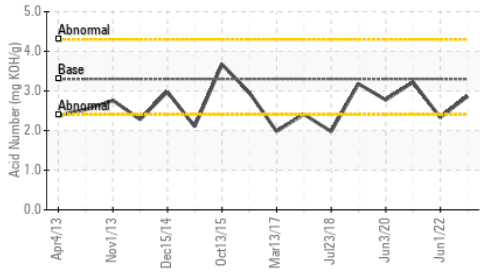
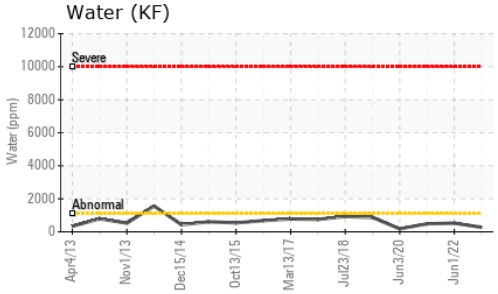
Particle Count



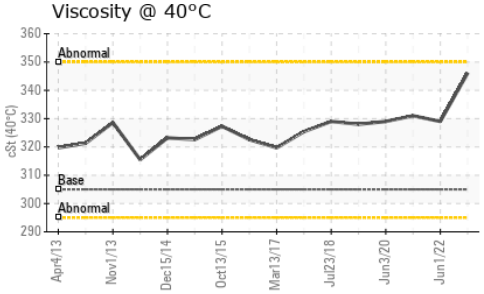
Acid Number



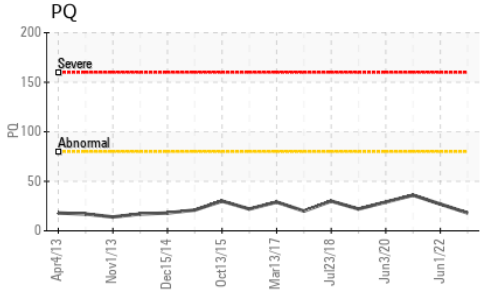
Water (KF)



Viscosity @ 40°C



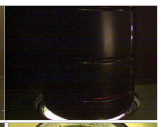
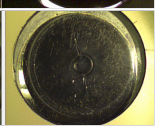
PQ



FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	3.3	**2.865**	2.33	3.221

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	LIGHT
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**	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	>.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	**346.1**	329	331
Visc @ 100°C	cSt	ASTM D445	30.5	**36.62**	---	---
Viscosity Index (VI)	Scale	ASTM D2270	140	**152**	---	---

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0941985 **Received** : 11 Jul 2024
Lab Number : 06234369 **Tested** : 17 Jul 2024
Unique Number : 11123203 **Diagnosed** : 17 Jul 2024 - Jonathan Hester
Test Package : IND 2 (Additional Tests: KF, KV100, PQ, PrtCount, VI)

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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HEALY, AK
US 99743
Contact: RYAN DEWITT
rjdewitt@gvea.com
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Report Id: REPHEA [WUSCAR] 06234369 (Generated: 07/17/2024 13:06:13) Rev: 1
Contact/Location: RYAN DEWITT - REPHEA