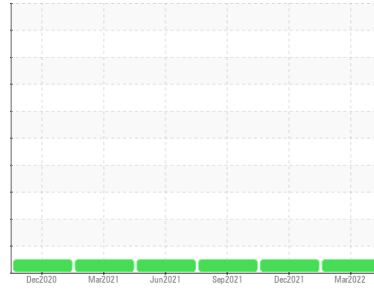




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id
CCUP STG
 Component
Turbine
 Fluid
R&O OIL ISO 32 (300 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

MPC (Membrane Patch Colorimetry) test indicates acceptable levels of varnish present. The amount and size of particulates present in the system are acceptable. There is no indication of any contamination in the oil.

Fluid Condition

RPVOT measured at 572. The AN level is acceptable for this fluid. Linear Sweep Voltammetry (RULER – ASTM D6971) testing indicates normal levels of anti-oxidants present in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0675479	WC0545578	WC0545577
Sample Date	Client Info		15 Mar 2022	15 Dec 2021	03 Sep 2021
Machine Age	hrs	Client Info	25944	0	22278
Oil Age	hrs	Client Info	0	24109	0
Oil Changed	Client Info		N/A	N/A	N/A
Sample Status			NORMAL	NORMAL	NORMAL

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >20	<1	0	0
Chromium	ppm	ASTM D5185m >20	0	0	0
Nickel	ppm	ASTM D5185m >20	0	0	0
Titanium	ppm	ASTM D5185m	0	0	0
Silver	ppm	ASTM D5185m	0	0	0
Aluminum	ppm	ASTM D5185m >20	<1	0	0
Lead	ppm	ASTM D5185m >20	1	<1	1
Copper	ppm	ASTM D5185m >20	<1	<1	<1
Tin	ppm	ASTM D5185m >20	<1	<1	0
Antimony	ppm	ASTM D5185m	---	0	0
Vanadium	ppm	ASTM D5185m	0	0	0
Cadmium	ppm	ASTM D5185m	0	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m 5	0	0	<1
Barium	ppm	ASTM D5185m 5	0	0	0
Molybdenum	ppm	ASTM D5185m 5	0	0	0
Manganese	ppm	ASTM D5185m	0	0	<1
Magnesium	ppm	ASTM D5185m 5	0	0	0
Calcium	ppm	ASTM D5185m 5	2	2	2
Phosphorus	ppm	ASTM D5185m 100	96	88	80
Zinc	ppm	ASTM D5185m 25	3	4	0
Sulfur	ppm	ASTM D5185m 1500	66	50	149

CONTAMINANTS

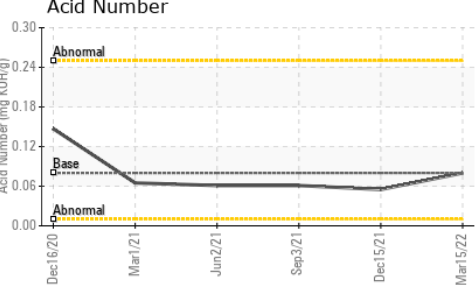
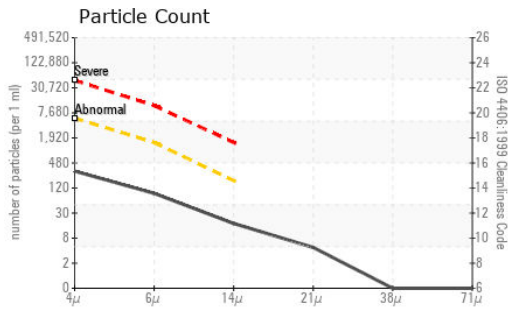
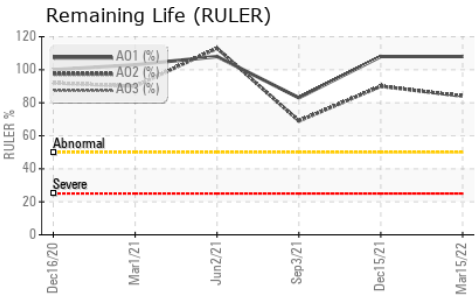
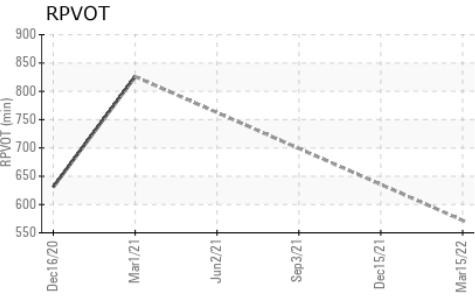
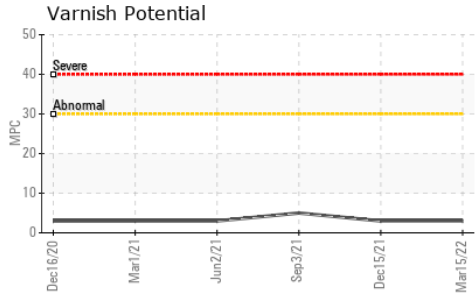
	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >15	<1	<1	0
Sodium	ppm	ASTM D5185m	2	4	<1
Potassium	ppm	ASTM D5185m >20	1	0	0
Water	%	ASTM D6304 >0.05	0.003	0.009	0.002
ppm Water	ppm	ASTM D6304 >500	26.2	98.5	16.8

FLUID CLEANLINESS

	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>5000	269	1014	486
Particles >6µm	ASTM D7647	>1300	79	338	73
Particles >14µm	ASTM D7647	>160	15	53	5
Particles >21µm	ASTM D7647	>40	4	13	2
Particles >38µm	ASTM D7647	>10	0	2	0
Particles >71µm	ASTM D7647	>3	0	0	0
Oil Cleanliness	ISO 4406 (c)	>19/17/14	15/13/11	17/16/13	16/13/10



OIL ANALYSIS REPORT



FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	0.08	0.08	0.055	0.061
Anti-Oxidant 1	%	ASTM D6971	<25	108	108	83
Anti-Oxidant 2	%	ASTM D6971	<25	84	90	69
MPC Varnish Potential	Scale	ASTM D7843	>15	3	3	5

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	>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	32	33.51	31.8	31.7
Visc @ 100°C	cSt	ASTM D445	5.4	5.94	5.87	---
Viscosity Index (VI)	Scale	ASTM D2270	102	122	130	---
Oxidation Test (RPVOT)	minutes	*ASTM D2272		572	---	---

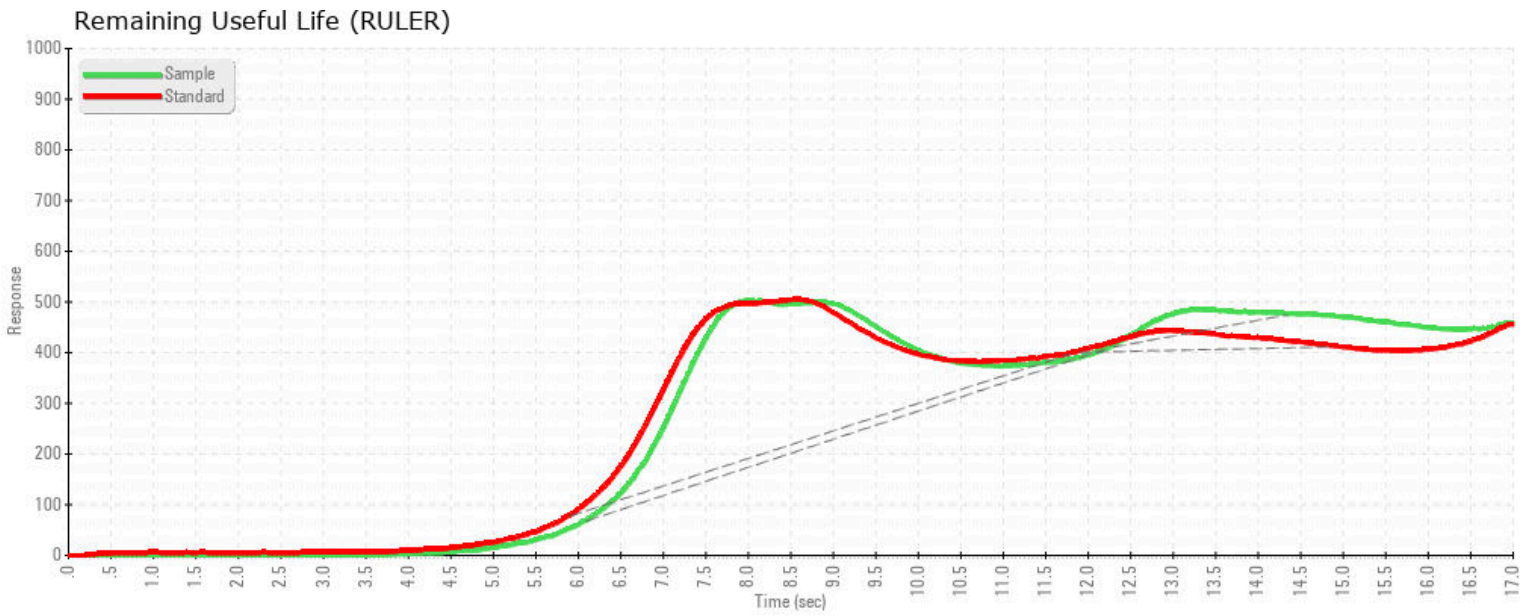
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					
MPC					



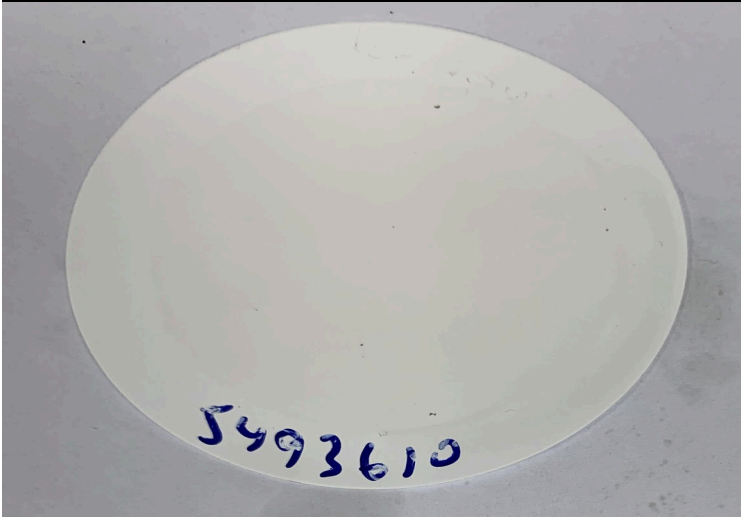
Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0675479
Lab Number : **05493610**
Unique Number : 9892830
Test Package : AOM 1 (Additional Tests: KF, RPVOT)
Received : 16 Mar 2022
Tested : 25 Mar 2022
Diagnosed : 25 Mar 2022 - Doug Bogart

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 RALEIGH, NC
 US 27607
 Contact: PAUL WALKER
 apwalke3@ncsu.edu
 T: (919)513-3646
 F:

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)



MPC (Varnish Test)



Sample Color & Clarity



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