



FLUID ANALYSIS REPORTS

USA NO.10

To: Dietrich Giles
American Queen Voyages - Oceans
1201 Bridgeport Drive
Jeffersonville, IN, US 47130

Laboratory
WearCheck USA
501 Madison Ave.
Cary, NC, USA 27513

American Queen Voyages - Oceans - 1201 Bridgeport Drive, Jeffersonville, IN 47130

Sample No.	: WC0824581	Area	OCEAN NAVIGATOR	WEAR	ABNORMAL
Lab Number	: 05990112	Machine Id	[OCEAN NAVIGATOR] OCEAN NAVIGATOR - D6	CONTAMINATION	NORMAL
Test Package	: MAR 2	Component	Starboard Genset	FLUID CONDITION	NORMAL
Sampled	: 20 Oct 2023	Fluid	FUCHS 15W40 (60 LTR)		

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OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area

OCEAN NAVIGATOR

Machine Id

[OCEAN NAVIGATOR] OCEAN NAVIGATOR - D6

Component

Starboard Genset

Fluid

FUCHS 15W40 (60 LTR)

RECOMMENDATION

No corrective action is recommended at this time. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0824581	WC0824574	WC0824507
Sample Date		Client Info		20 Oct 2023	24 Sep 2023	09 Aug 2023
Machine Age	hrs	Client Info		0	0	0
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				ABNORMAL	NORMAL	NORMAL

WEAR

The aluminum level is abnormal. All other component wear rates are normal.

Iron	ppm	ASTM D5185m	>50	37	23	26
Chromium	ppm	ASTM D5185m	>4	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>5	0	0	0
Aluminum	ppm	ASTM D5185m	>12	17	2	2
Lead	ppm	ASTM D5185m	>17	10	8	10
Copper	ppm	ASTM D5185m	>70	15	17	29
Tin	ppm	ASTM D5185m	>15	2	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

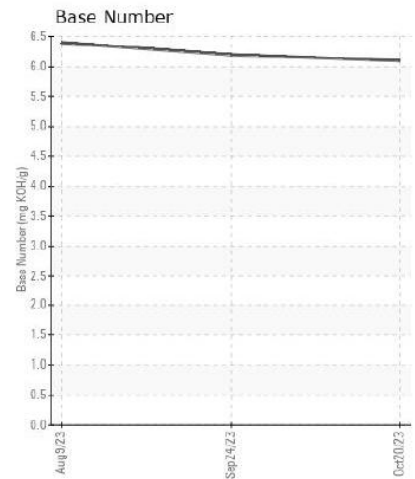
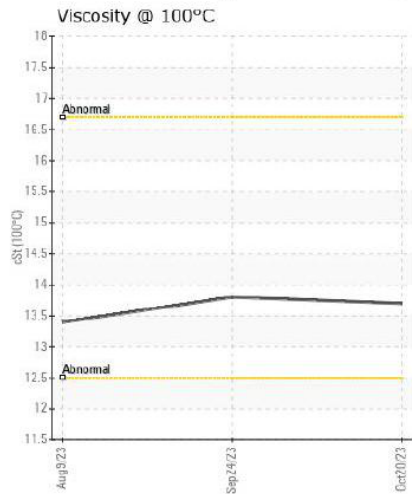
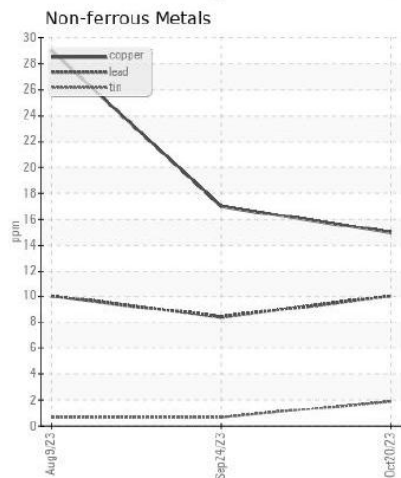
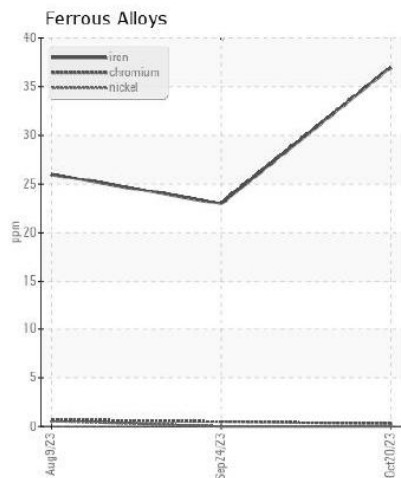
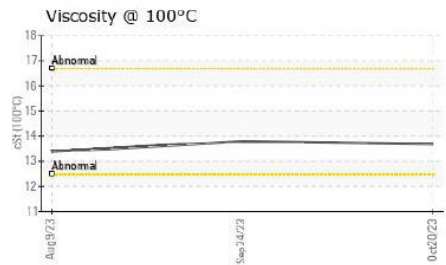
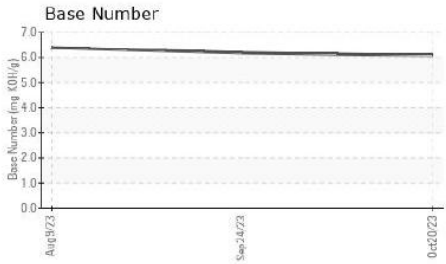
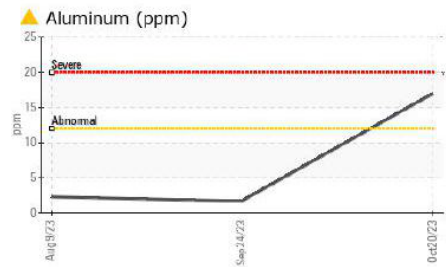
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	7	5	6
Potassium	ppm	ASTM D5185m	>20	2	<1	3
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844		0.2	0.2	0.2
Nitration	Abs/cm	*ASTM D7624	>20	9.7	9.8	10.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	23.3	23.1	23.4
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	LIGHT	LIGHT
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	>0.1	NEG	NEG	NEG

FLUID CONDITION

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		19	23	47
Boron	ppm	ASTM D5185m		10	14	24
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		5	4	9
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		7	18	19
Calcium	ppm	ASTM D5185m		2683	2899	2972
Phosphorus	ppm	ASTM D5185m		963	951	926
Zinc	ppm	ASTM D5185m		1241	1222	1127
Sulfur	ppm	ASTM D5185m		3712	3773	3635
Oxidation	Abs/.1mm	*ASTM D7414	>25	18.3	18.3	18.3
Base Number (BN)	mg KOH/g	ASTM D2896		6.1	6.2	6.4
Visc @ 100°C	cSt	ASTM D445		13.7	13.8	13.4



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
 Sample No. : WC0824581
 Lab Number : 05990112
 Unique Number : 10712774
 Test Package : MAR 2

Received : 26 Oct 2023
 Diagnosed : 30 Oct 2023
 Diagnostician : Sean Felton

American Queen Voyages - Oceans
 1201 Bridgeport Drive
 Jeffersonville, IN
 US 47130
 Contact: Dietrich Giles

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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