

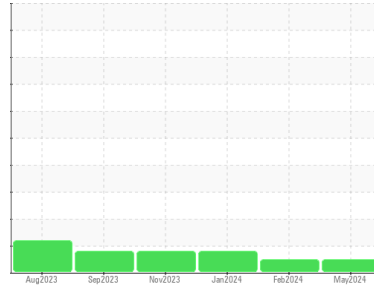


OIL ANALYSIS REPORT



Area
SEAWARD EXPLORER
 Machine Id
Explorer - SME
 Component
Starboard Main Engine
 Fluid
MOBIL DELVAC 1640 (--- GAL)

Sample Rating Trend



NORMAL



DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

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.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0907676	WC0859374	WC0891235
Sample Date	Client Info		10 May 2024	12 Feb 2024	24 Jan 2024
Machine Age	hrs	Client Info	17246	16518	15075
Oil Age	hrs	Client Info	17214	37	563
Oil Changed	Client Info		Changed	Not Changd	Not Changd
Sample Status			NORMAL	NORMAL	MARGINAL

CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>4.0	<1.0	<1.0	▲ 2.4
Water	WC Method	>0.1	NEG	NEG	NEG
Glycol	WC Method		NEG	NEG	NEG

WEAR METALS

	method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m	>75	14	3	4
Chromium	ppm	ASTM D5185m	>8	0	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	<1	<1
Titanium	ppm	ASTM D5185m	>3	0	<1	2
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>15	1	1	1
Lead	ppm	ASTM D5185m	>18	0	0	1
Copper	ppm	ASTM D5185m	>80	2	<1	5
Tin	ppm	ASTM D5185m	>14	0	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	<1

ADDITIVES

	method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m		2	2	44
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		<1	<1	13
Manganese	ppm	ASTM D5185m		1	<1	<1
Magnesium	ppm	ASTM D5185m		251	297	102
Calcium	ppm	ASTM D5185m		3736	3366	1923
Phosphorus	ppm	ASTM D5185m		976	919	891
Zinc	ppm	ASTM D5185m		1057	1054	1001
Sulfur	ppm	ASTM D5185m		5472	4118	3887

CONTAMINANTS

	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m	>20	8	11	9
Sodium	ppm	ASTM D5185m	>75	2	<1	0
Potassium	ppm	ASTM D5185m	>20	1	<1	3

INFRA-RED

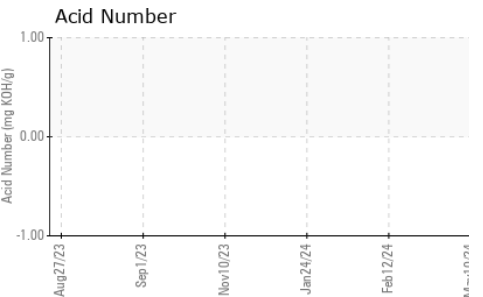
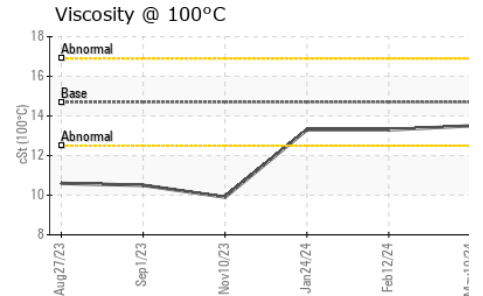
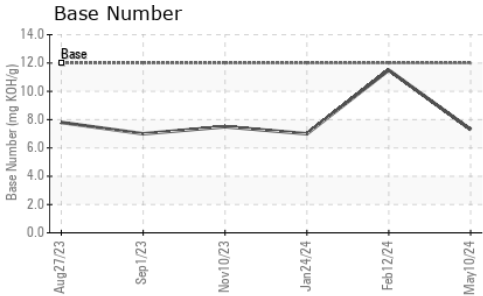
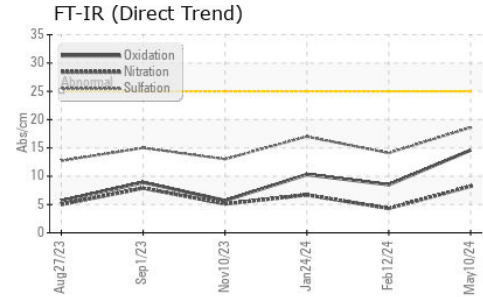
	method	limit/base	current	history1	history2	
Soot %	%	*ASTM D7844		0.3	0	0.1
Nitration	Abs/cm	*ASTM D7624	>20	8.2	4.3	6.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	18.6	14.1	17.0

FLUID DEGRADATION

	method	limit/base	current	history1	history2	
Oxidation	Abs/.1mm	*ASTM D7414	>25	14.6	8.5	10.3
Base Number (BN)	mg KOH/g	ASTM D2896	12	7.3	11.5	7.0



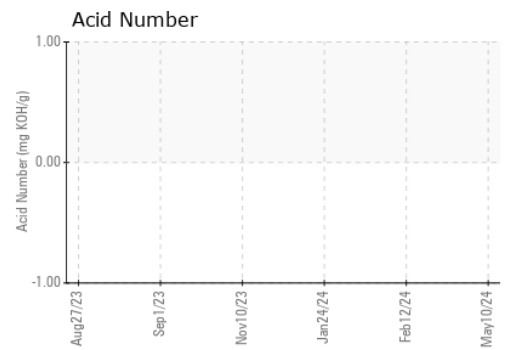
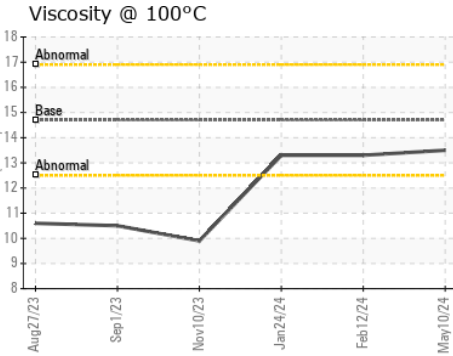
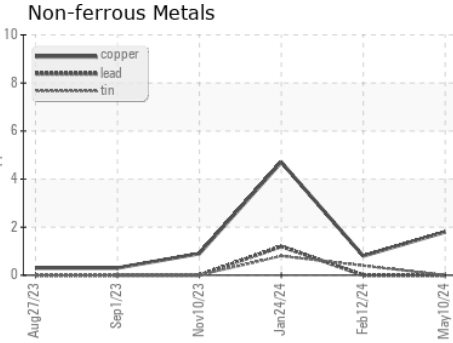
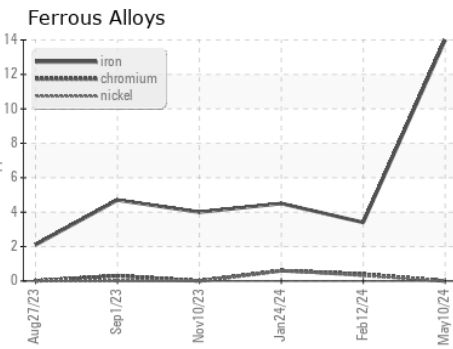
OIL ANALYSIS REPORT



VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.7	13.5	13.3

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0907676 **Received** : 17 Jun 2024
Lab Number : 06211327 **Tested** : 20 Jun 2024
Unique Number : 11084191 **Diagnosed** : 20 Jun 2024 - Jonathan Hester
Test Package : MAR 2 (Additional Tests: TAN Man)

SEAWARD SERVICES
 222 PEARL ST
 NEW ALBANY, IN
 US 47150
 Contact: PETER CHARBONNET
 PCHARBONNET@HMS-SEAWARD.COM

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)