



WEAR	<b>NORMAL</b>
CONTAMINATION	<b>NORMAL</b>
FLUID CONDITION	<b>NORMAL</b>

Area  
**SANDY B**  
Machine Id  
[SANDY B] 003 562531-3  
Component  
Starboard Main Engine  
Fluid  
SHELL ROTELLA T 15W40 (--- GAL)

**RECOMMENDATION**

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>MW0068847</b>	MW0061656	MW0061337
Sample Date		Client Info		<b>06 Apr 2024</b>	02 Jan 2024	30 Nov 2023
Machine Age	hrs	Client Info		<b>4044</b>	2682	2273
Oil Age	hrs	Client Info		<b>470</b>	203	309
Filter Age	hrs	Client Info		<b>470</b>	203	309
Oil Changed		Client Info		<b>Not Changd</b>	Not Changd	Not Changd
Filter Changed		Client Info		<b>Not Changd</b>	Not Changd	Not Changd
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

**WEAR**

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	<b>7</b>	0	2
Chromium	ppm	ASTM D5185m	>8	<b>&lt;1</b>	0	0
Nickel	ppm	ASTM D5185m	>2	<b>&lt;1</b>	0	<1
Titanium	ppm	ASTM D5185m	>3	<b>&lt;1</b>	0	0
Silver	ppm	ASTM D5185m	>2	<b>0</b>	0	<1
Aluminum	ppm	ASTM D5185m	>15	<b>&lt;1</b>	2	1
Lead	ppm	ASTM D5185m	>18	<b>1</b>	0	<1
Copper	ppm	ASTM D5185m	>80	<b>1</b>	1	3
Tin	ppm	ASTM D5185m	>14	<b>1</b>	0	<1
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	0	<1
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

**CONTAMINATION**

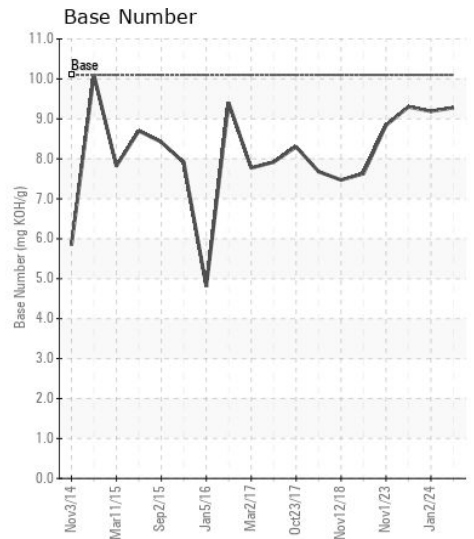
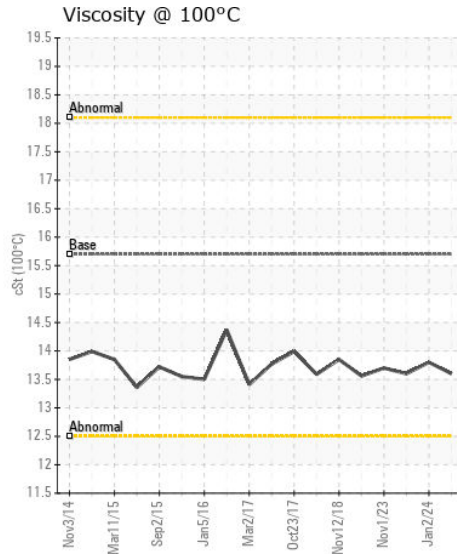
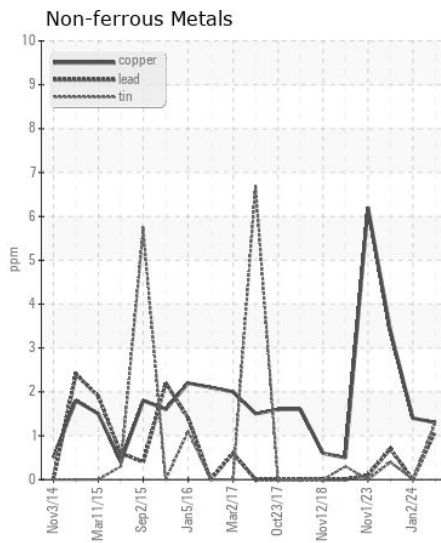
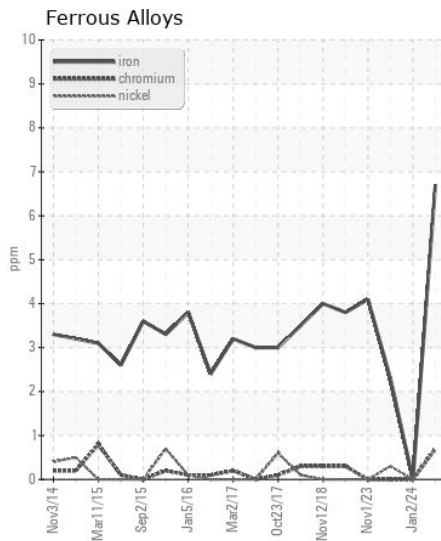
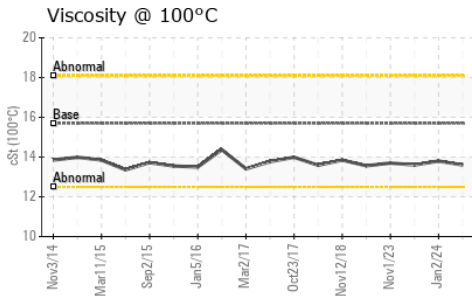
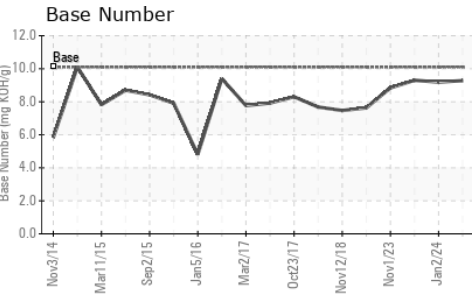
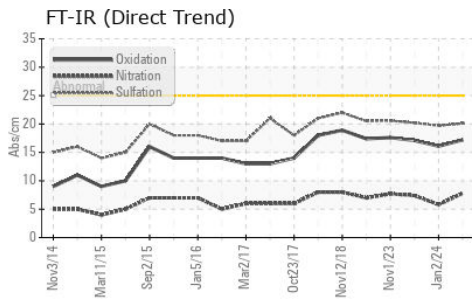
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>20	<b>4</b>	4	3
Potassium	ppm	ASTM D5185m	>20	<b>10</b>	5	9
Fuel		WC Method	>4.0	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.1	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844		<b>0.1</b>	0	0.1
Nitration	Abs/cm	*ASTM D7624	>20	<b>7.8</b>	5.8	7.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>20.1</b>	19.7	20.2
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	<b>NEG</b>	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	>75	<b>0</b>	0	2
Boron	ppm	ASTM D5185m	316	<b>189</b>	181	181
Barium	ppm	ASTM D5185m	0.0	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	1.2	<b>11</b>	5	6
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	2	<1
Magnesium	ppm	ASTM D5185m	24	<b>56</b>	36	32
Calcium	ppm	ASTM D5185m	2292	<b>2137</b>	2044	2120
Phosphorus	ppm	ASTM D5185m	1064	<b>1014</b>	935	979
Zinc	ppm	ASTM D5185m	1160	<b>1147</b>	1117	1172
Sulfur	ppm	ASTM D5185m	4996	<b>3889</b>	3283	3538
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>17.2</b>	16.1	17.1
Base Number (BN)	mg KOH/g	ASTM D2896	10.1	<b>9.28</b>	9.19	9.30
Visc @ 100°C	cSt	ASTM D445	15.7	<b>13.6</b>	13.8	13.6



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : MW0068847  
**Lab Number** : 06174068  
**Unique Number** : 11020121  
**Test Package** : MAR 2  
**Received** : 09 May 2024  
**Tested** : 10 May 2024  
**Diagnosed** : 12 May 2024 - Don Baldrige

**INGRAM BARGE**  
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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)