



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

Machine Id  
**HBR**  
Component  
**Starboard Main Engine**  
Fluid  
**CHEVRON DELO 400 XLE 15W40 (11 GAL)**

**RECOMMENDATION**

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>MW05904214</b>	MW05843069	MW05823786
Sample Date		Client Info		<b>20 Jul 2023</b>	09 May 2023	18 Apr 2023
Machine Age	hrs	Client Info		<b>25256</b>	24489	23883
Oil Age	hrs	Client Info		<b>768</b>	3550	2947
Filter Age	hrs	Client Info		<b>0</b>	0	0
Oil Changed		Client Info		<b>N/A</b>	N/A	N/A
Filter Changed		Client Info		<b>N/A</b>	N/A	N/A
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

**WEAR**

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	<b>5</b>	3	6
Chromium	ppm	ASTM D5185m	>8	<b>&lt;1</b>	0	<1
Nickel	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Titanium	ppm	ASTM D5185m	>3	<b>0</b>	0	0
Silver	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>15	<b>2</b>	5	0
Lead	ppm	ASTM D5185m	>18	<b>0</b>	0	<1
Copper	ppm	ASTM D5185m	>80	<b>0</b>	0	<1
Tin	ppm	ASTM D5185m	>14	<b>0</b>	0	0
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	0
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

**CONTAMINATION**

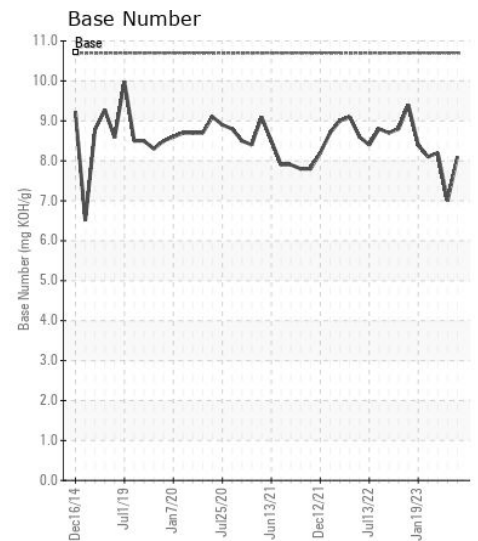
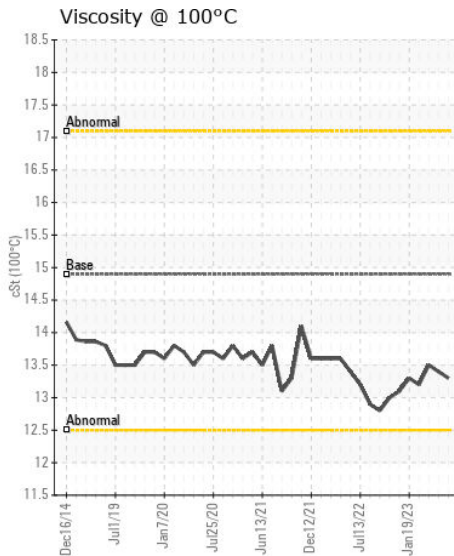
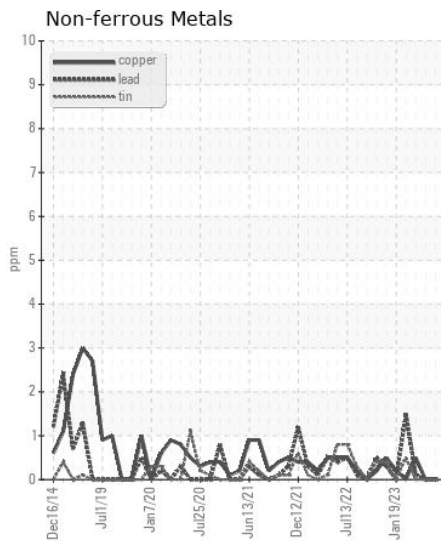
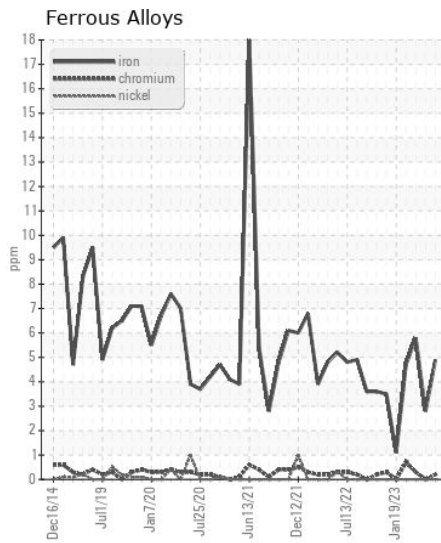
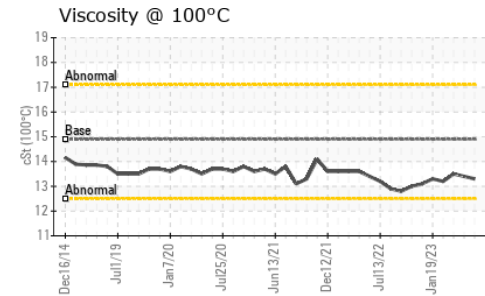
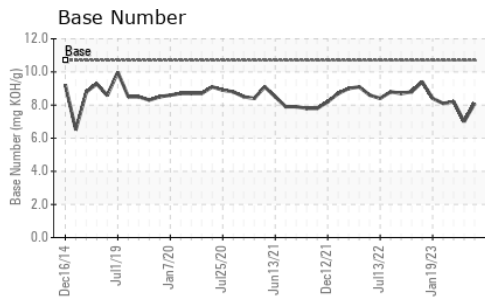
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>20	<b>6</b>	5	6
Potassium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	2	2
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>0.8</b>	0.1	0.8
Nitration	Abs/cm	*ASTM D7624	>20	<b>6.2</b>	7.5	6.2
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>21.7</b>	24.6	22.1
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>&lt;1</b>	<1	1
Boron	ppm	ASTM D5185m		<b>373</b>	307	334
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>105</b>	106	105
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	0	<1
Magnesium	ppm	ASTM D5185m		<b>535</b>	565	507
Calcium	ppm	ASTM D5185m		<b>1778</b>	1734	1547
Phosphorus	ppm	ASTM D5185m	760	<b>947</b>	855	794
Zinc	ppm	ASTM D5185m	830	<b>1140</b>	1046	961
Sulfur	ppm	ASTM D5185m	2770	<b>3736</b>	3119	2719
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>14.3</b>	23.0	14.6
Base Number (BN)	mg KOH/g	ASTM D2896	10.7	<b>8.1</b>	7.0	8.2
Visc @ 100°C	cSt	ASTM D445	14.9	<b>13.3</b>	13.4	13.5



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : MW05904214  
**Lab Number** : 05904214  
**Unique Number** : 10565570  
**Test Package** : MAR 2

**Received** : 21 Jul 2023  
**Tested** : 21 Jul 2023  
**Diagnosed** : 24 Jul 2023 - Angela Borella

**ILLINOIS MARINE TOWING**  
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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)