



WEAR	ABNORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
CHARLIE M EVERHART
Machine Id
[CHARLIE M EVERHART] 003 534782-3
Component
Starboard Main Engine
Fluid
CHEVRON DELO 400 LE 15W40 (30 GAL)

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		MW0062860	MW0064473	MW0064469
Sample Date		Client Info		01 May 2024	01 Apr 2024	01 Mar 2024
Machine Age	hrs	Client Info		15396	14678	13932
Oil Age	hrs	Client Info		178	971	165
Filter Age	hrs	Client Info		178	971	165
Oil Changed		Client Info		Not Chngd	N/A	Changed
Filter Changed		Client Info		Not Chngd	N/A	Changed
Sample Status				ABNORMAL	NORMAL	NORMAL

WEAR

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

Iron	ppm	ASTM D5185m	>75	3	10	10
Chromium	ppm	ASTM D5185m	>8	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	<1	<1
Titanium	ppm	ASTM D5185m	>3	<1	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	3	4	7
Lead	ppm	ASTM D5185m	>18	5	10	14
Copper	ppm	ASTM D5185m	>80	▲ 88	77	51
Tin	ppm	ASTM D5185m	>14	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	<1	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

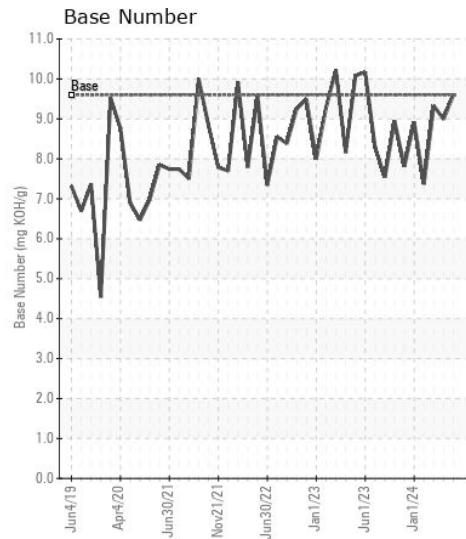
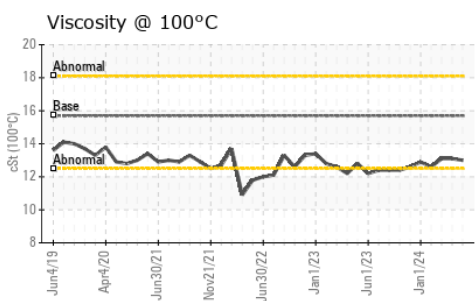
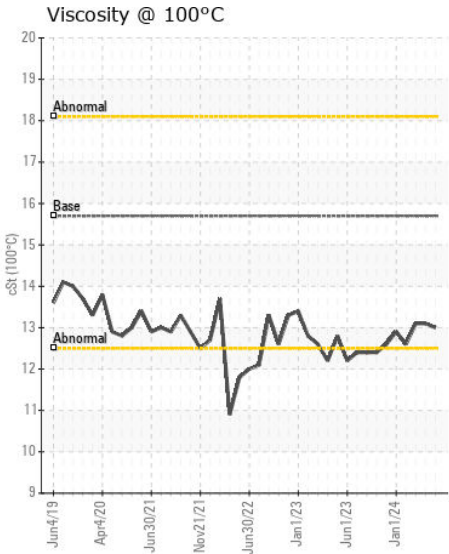
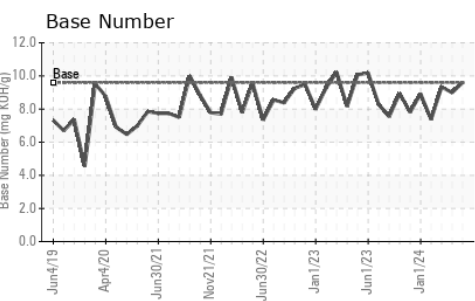
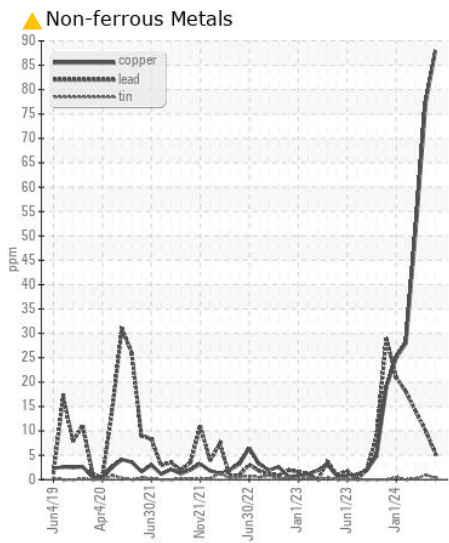
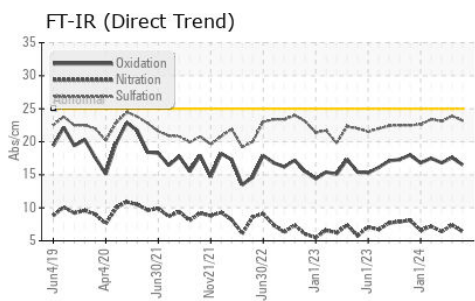
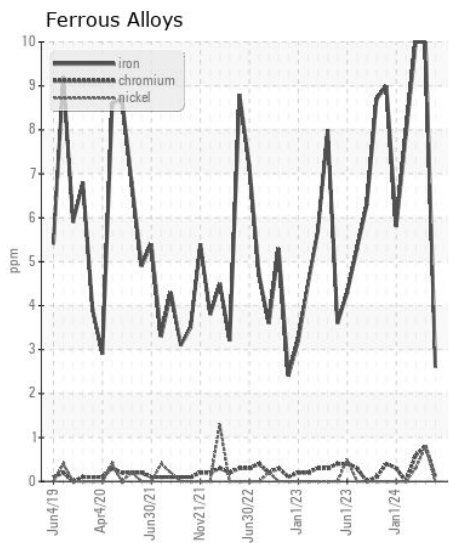
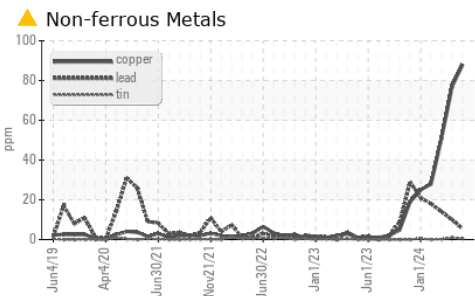
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>20	4	6	9
Potassium	ppm	ASTM D5185m	>20	0	2	<1
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844		0.1	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	6.4	7.4	6.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	23.2	23.9	23.1
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	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	>0.1	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	>75	<1	0	3
Boron	ppm	ASTM D5185m		385	433	534
Barium	ppm	ASTM D5185m		1	2	0
Molybdenum	ppm	ASTM D5185m		120	126	183
Manganese	ppm	ASTM D5185m		<1	1	<1
Magnesium	ppm	ASTM D5185m		639	620	930
Calcium	ppm	ASTM D5185m		1450	1509	2158
Phosphorus	ppm	ASTM D5185m	1200	758	747	1064
Zinc	ppm	ASTM D5185m	1300	820	868	1233
Sulfur	ppm	ASTM D5185m	3200	2769	2899	3818
Oxidation	Abs/.1mm	*ASTM D7414	>25	16.5	17.6	16.8
Base Number (BN)	mg KOH/g	ASTM D2896	9.6	9.60	8.99	9.33
Visc @ 100°C	cSt	ASTM D445	15.7	13.0	13.1	13.1



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0062860 **Received** : 13 May 2024
Lab Number : **06177901** **Tested** : 14 May 2024
Unique Number : 11029227 **Diagnosed** : 15 May 2024 - Sean Felton
Test Package : MAR 2

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Certificate L2367
 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)