



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

Area  
**VQU**  
Machine Id  
**VQU (S/N 10-B1-1005)**  
Component  
**Starboard Main Engine**  
Fluid  
**CHEVRON DELO 710 LS (350 GAL)**

**RECOMMENDATION**

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>MW0060710</b>	MW0050885	MW0039987
Sample Date		Client Info		<b>06 Jan 2024</b>	11 Nov 2023	22 Sep 2023
Machine Age	hrs	Client Info		<b>12544</b>	90078	10005
Oil Age	hrs	Client Info		<b>6174</b>	4222	8635
Filter Age	hrs	Client Info		<b>1356</b>	1179	1179
Oil Changed		Client Info		<b>Not Chngd</b>	Not Chngd	Not Chngd
Filter Changed		Client Info		<b>Changed</b>	Changed	N/A
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

**WEAR**

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	<b>14</b>	15	16
Chromium	ppm	ASTM D5185m	>8	<b>&lt;1</b>	<1	<1
Nickel	ppm	ASTM D5185m	>2	<b>1</b>	<1	<1
Titanium	ppm	ASTM D5185m	>3	<b>&lt;1</b>	<1	<1
Silver	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>15	<b>2</b>	2	1
Lead	ppm	ASTM D5185m	>18	<b>4</b>	3	4
Copper	ppm	ASTM D5185m	>80	<b>10</b>	11	11
Tin	ppm	ASTM D5185m	>14	<b>5</b>	4	4
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**

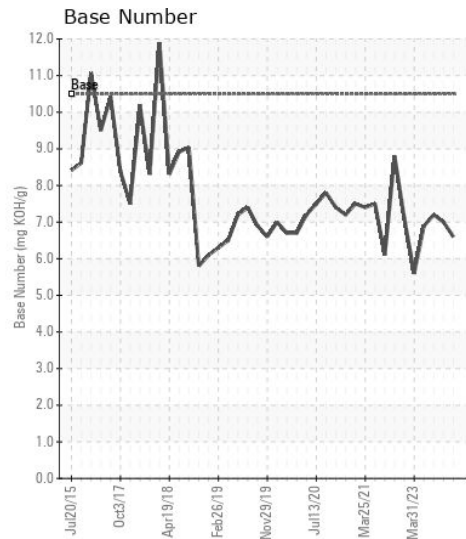
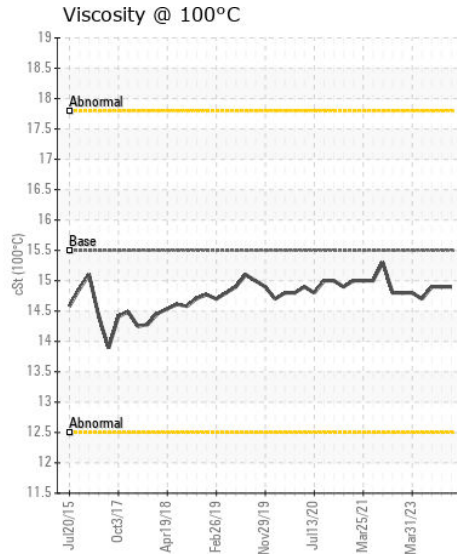
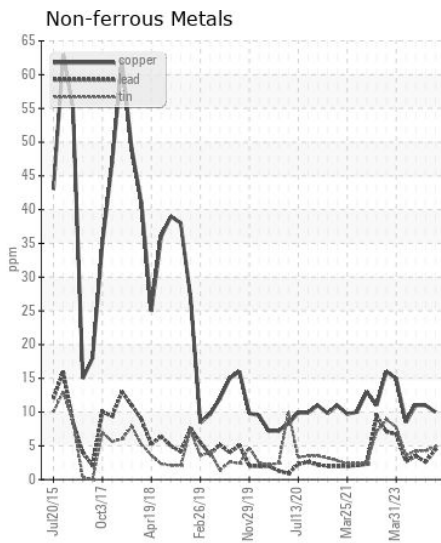
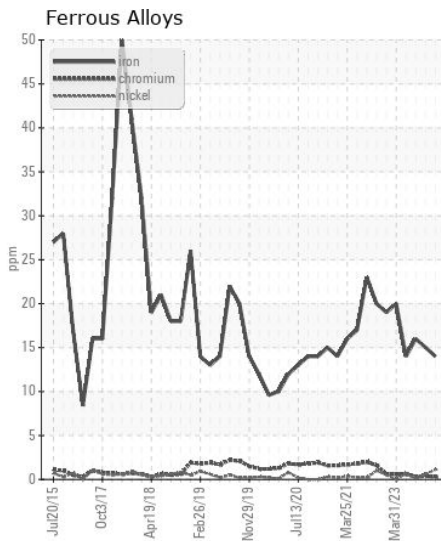
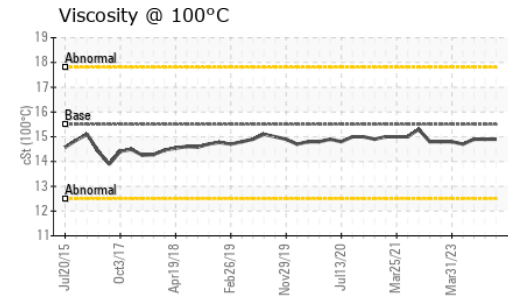
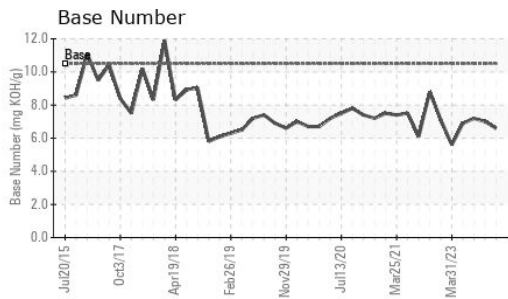
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>20	<b>2</b>	3	3
Potassium	ppm	ASTM D5185m	>20	<b>0</b>	<1	0
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	>3	<b>0.5</b>	0.7	0.7
Nitration	Abs/cm	*ASTM D7624	>20	<b>8.3</b>	8.3	8.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>17.5</b>	17.3	17.5
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>	2	2
Boron	ppm	ASTM D5185m		<b>41</b>	38	40
Barium	ppm	ASTM D5185m		<b>0</b>	0	<1
Molybdenum	ppm	ASTM D5185m		<b>44</b>	43	47
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m		<b>16</b>	14	11
Calcium	ppm	ASTM D5185m		<b>3410</b>	3546	3513
Phosphorus	ppm	ASTM D5185m		<b>3</b>	3	6
Zinc	ppm	ASTM D5185m		<b>0</b>	0	4
Sulfur	ppm	ASTM D5185m		<b>2155</b>	2258	2200
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>10.0</b>	9.5	9.9
Base Number (BN)	mg KOH/g	ASTM D2896	10.5	<b>6.6</b>	7.0	7.2
Visc @ 100°C	cSt	ASTM D445	15.5	<b>14.9</b>	14.9	14.9



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : MW0060710 **Received** : 30 Jan 2024  
**Lab Number** : 06074353 **Diagnosed** : 31 Jan 2024  
**Unique Number** : 10856444 **Diagnostician** : Wes Davis  
**Test Package** : MAR 2

**AMERICAN RIVER TRANSPORTATION CO.**  
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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)