



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

Area  
**LOUISIANA STAR**

Machine Id

**LST**

Component

**Starboard Main Engine**

Fluid

**CHEVRON DELO 710 LS (37 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		<b>MW0065105</b>	MW0065153	MW0065134
Sample Date		Client Info		<b>12 Apr 2024</b>	08 Mar 2024	29 Jan 2024
Machine Age	hrs	Client Info		<b>24168</b>	23457	22650
Oil Age	hrs	Client Info		<b>0</b>	0	0
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>ABNORMAL</b>	ABNORMAL	NORMAL

**WEAR**

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

Iron	ppm	ASTM D5185m	>75	<b>15</b>	20	11
Chromium	ppm	ASTM D5185m	>8	<b>0</b>	<1	<1
Nickel	ppm	ASTM D5185m	>2	<b>0</b>	<1	0
Titanium	ppm	ASTM D5185m	>3	<b>0</b>	<1	<1
Silver	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>15	<b>2</b>	4	2
Lead	ppm	ASTM D5185m	>18	<b>▲ 39</b>	▲ 39	15
Copper	ppm	ASTM D5185m	>80	<b>0</b>	<1	<1
Tin	ppm	ASTM D5185m	>14	<b>&lt;1</b>	<1	<1
Vanadium	ppm	ASTM D5185m		<b>0</b>	<1	<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.

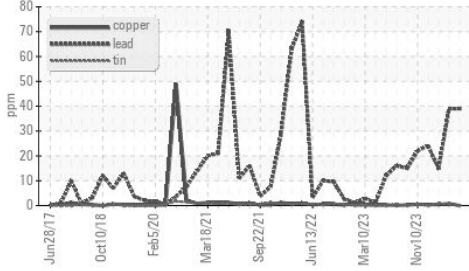
Silicon	ppm	ASTM D5185m	>20	<b>3</b>	5	4
Potassium	ppm	ASTM D5185m	>20	<b>0</b>	2	0
Fuel		WC Method	>4.0	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.1	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844		<b>0.2</b>	0.2	0.2
Nitration	Abs/cm	*ASTM D7624	>20	<b>11.2</b>	11.2	11.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>20.6</b>	20.1	21.1
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>1</b>	2	2
Boron	ppm	ASTM D5185m		<b>39</b>	51	24
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>37</b>	50	25
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m		<b>25</b>	12	9
Calcium	ppm	ASTM D5185m		<b>3500</b>	4583	3120
Phosphorus	ppm	ASTM D5185m		<b>8</b>	6	0
Zinc	ppm	ASTM D5185m		<b>10</b>	<1	0
Sulfur	ppm	ASTM D5185m		<b>3178</b>	3732	3001
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>19.1</b>	17.6	18.0
Base Number (BN)	mg KOH/g	ASTM D2896	10.5	<b>8.0</b>	9.3	8.9
Visc @ 100°C	cSt	ASTM D445	15.5	<b>14.1</b>	14.4	14.4

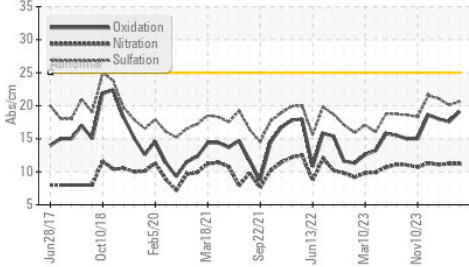
▲ Non-ferrous Metals



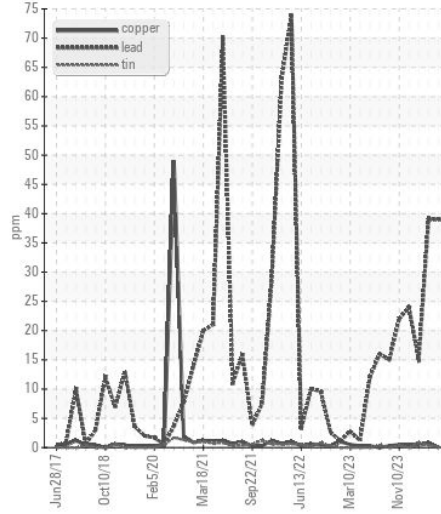
Ferrous Alloys



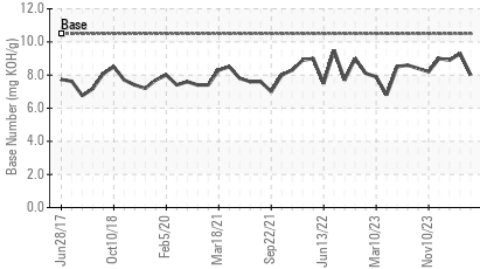
FT-IR (Direct Trend)



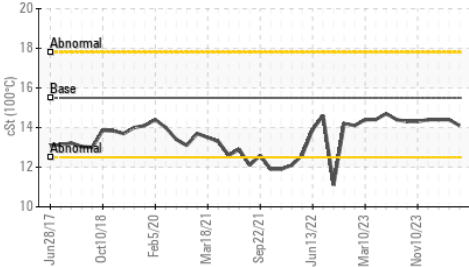
▲ Non-ferrous Metals



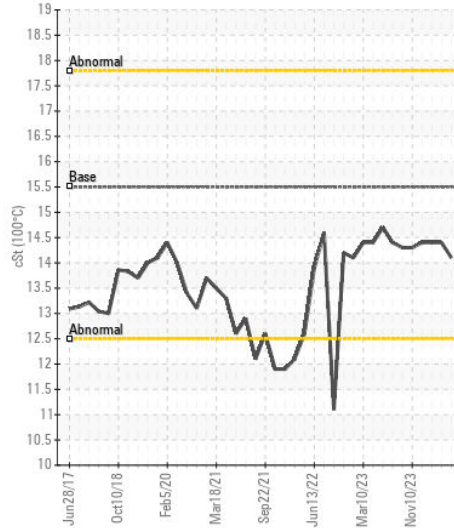
Base Number



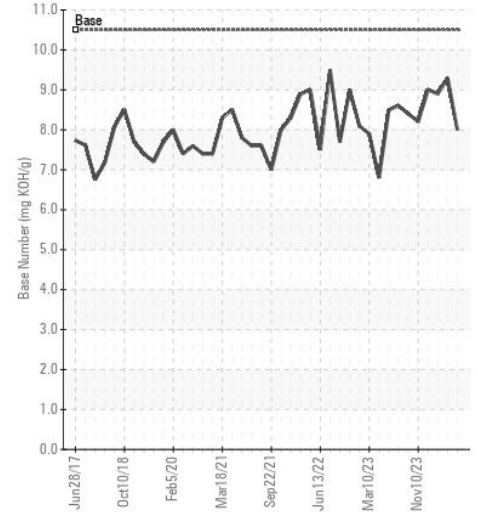
Viscosity @ 100°C



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : MW0065105

Lab Number : 06175268

Unique Number : 11021321

Test Package : MAR 2

Received : 10 May 2024

Tested : 13 May 2024

Diagnosed : 13 May 2024 - Don Baldrige

AMERICAN RIVER TRANSPORTATION CO.

P.O. BOX 2889

ST. LOUIS, MO

US 63111

Contact: BRIAN GRIEWING

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F: (314)481-5278

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)