



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

Machine Id  
**LOUISIANA TRANSPORTER**

Component  
**Starboard Main Engine**

Fluid  
**CHEVRON DELO 400 MULTIGRADE 15W40 (48 GAL)**

**RECOMMENDATION**

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>MW0064952</b>	MW0042868	MW0057271
Sample Date		Client Info		<b>10 Jun 2024</b>	22 Mar 2024	05 Jan 2024
Machine Age	hrs	Client Info		<b>50675</b>	50911	49194
Oil Age	hrs	Client Info		<b>3498</b>	1750	3680
Filter Age	hrs	Client Info		<b>3498</b>	1750	1750
Oil Changed		Client Info		<b>Changed</b>	Not Changed	Changed
Filter Changed		Client Info		<b>Changed</b>	Changed	Changed
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

**WEAR**

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	<b>9</b>	4	11
Chromium	ppm	ASTM D5185m	>8	<b>&lt;1</b>	<1	<1
Nickel	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Titanium	ppm	ASTM D5185m	>3	<b>11</b>	10	11
Silver	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>15	<b>2</b>	1	2
Lead	ppm	ASTM D5185m	>18	<b>5</b>	0	17
Copper	ppm	ASTM D5185m	>80	<b>&lt;1</b>	0	<1
Tin	ppm	ASTM D5185m	>14	<b>0</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.

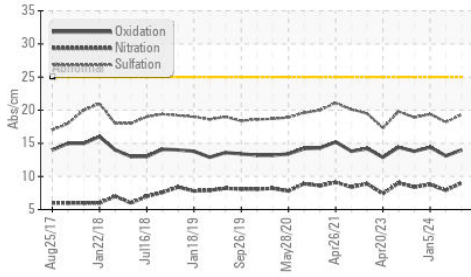
Silicon	ppm	ASTM D5185m	>20	<b>3</b>	3	4
Potassium	ppm	ASTM D5185m	>20	<b>4</b>	2	2
Fuel		WC Method	>4.0	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.1	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844		<b>0.4</b>	0.3	0.5
Nitration	Abs/cm	*ASTM D7624	>20	<b>9.0</b>	7.9	8.8
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>19.3</b>	18.2	19.4
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**

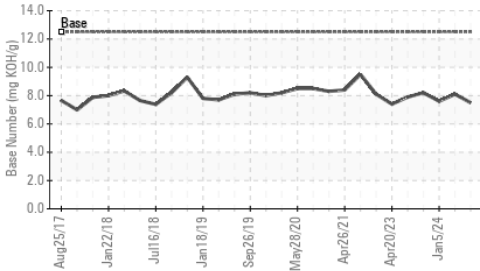
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185m	>75	<b>14</b>	13	12
Boron	ppm	ASTM D5185m	151	<b>52</b>	83	66
Barium	ppm	ASTM D5185m	0.4	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	250	<b>48</b>	47	60
Manganese	ppm	ASTM D5185m		<b>0</b>	<1	<1
Magnesium	ppm	ASTM D5185m	0	<b>686</b>	673	759
Calcium	ppm	ASTM D5185m	2046	<b>1456</b>	1429	1813
Phosphorus	ppm	ASTM D5185m	1043	<b>737</b>	702	829
Zinc	ppm	ASTM D5185m	943	<b>865</b>	808	1028
Sulfur	ppm	ASTM D5185m	5012	<b>2873</b>	3340	3630
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>14.0</b>	13.1	14.4
Base Number (BN)	mg KOH/g	ASTM D2896	12.5	<b>7.5</b>	8.1	7.6
Visc @ 100°C	cSt	ASTM D445	14.4	<b>13.3</b>	13.6	13.5

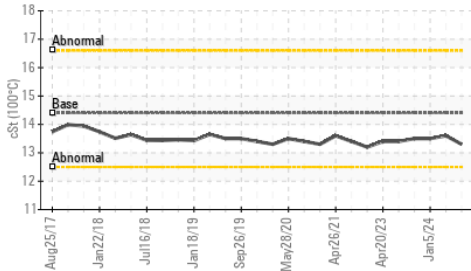
**FT-IR (Direct Trend)**



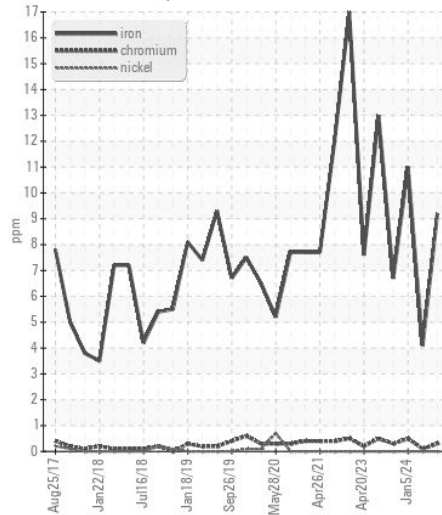
**Base Number**



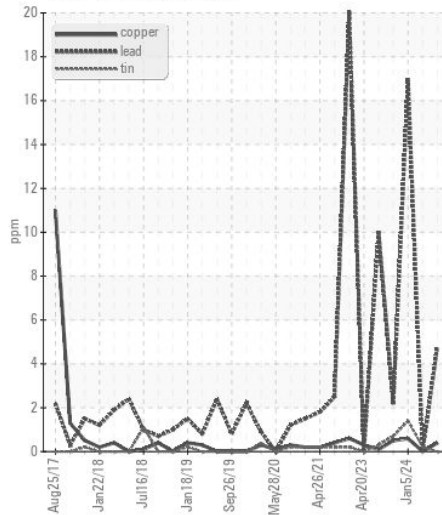
**Viscosity @ 100°C**



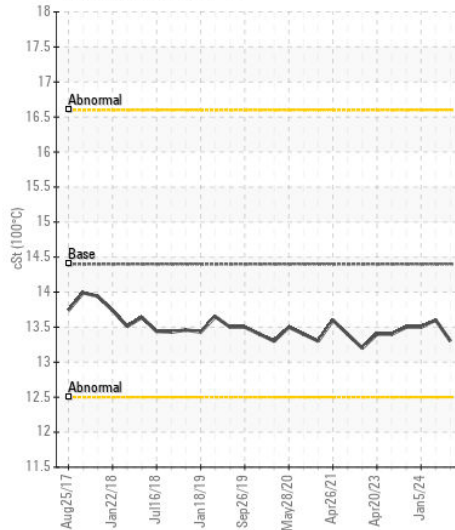
**Ferrous Alloys**



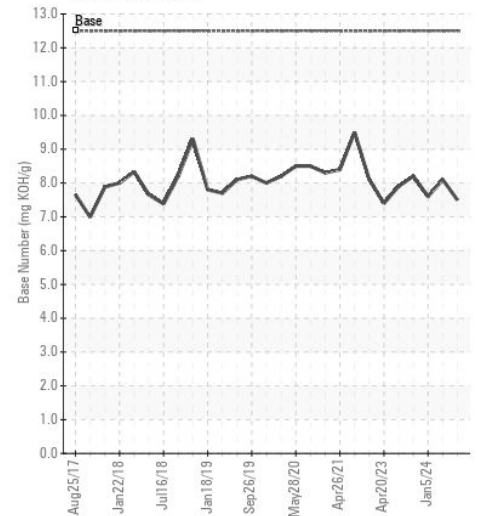
**Non-ferrous Metals**



**Viscosity @ 100°C**



**Base Number**



Certificate L2367

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

**Sample No.** : MW0064952

**Lab Number** : 06214195

**Unique Number** : 11087059

**Test Package** : MAR 2

**Received** : 19 Jun 2024

**Tested** : 21 Jun 2024

**Diagnosed** : 21 Jun 2024 - Sean Felton

**AMERICAN RIVER TRANSPORTATION CO**

8400 RIVER RD, PO BOX 656

WESTWEGO, LA

US 70094-2317

Contact: KEVIN CHIASSON

kevin.chiasson@adm.com

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)

T:

F: