



WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
LEGACY
Component
Starboard Main Engine
Fluid
CHEVRON DELO 400 MULTIGRADE 15W40 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0057306	MW0016508	MW0016647
Sample Date		Client Info		08 Jan 2024	27 Dec 2022	21 Sep 2022
Machine Age	hrs	Client Info		49615	43391	41362
Oil Age	hrs	Client Info		3552	2012	2159
Filter Age	hrs	Client Info		3552	2012	2159
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	8	10	5
Chromium	ppm	ASTM D5185m	>8	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m	>3	13	13	13
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	1	0	0
Lead	ppm	ASTM D5185m	>18	9	2	2
Copper	ppm	ASTM D5185m	>80	<1	<1	0
Tin	ppm	ASTM D5185m	>14	1	0	0
Vanadium	ppm	ASTM D5185m		<1	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

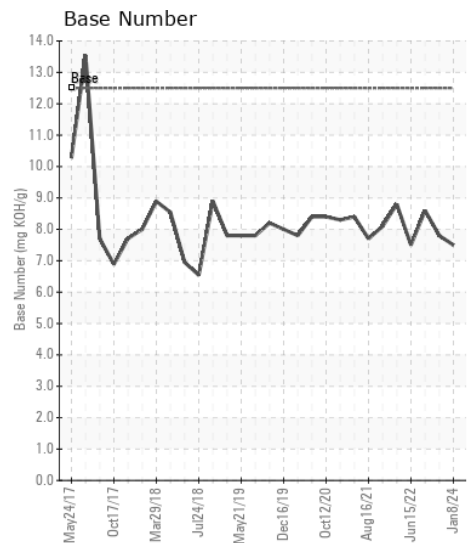
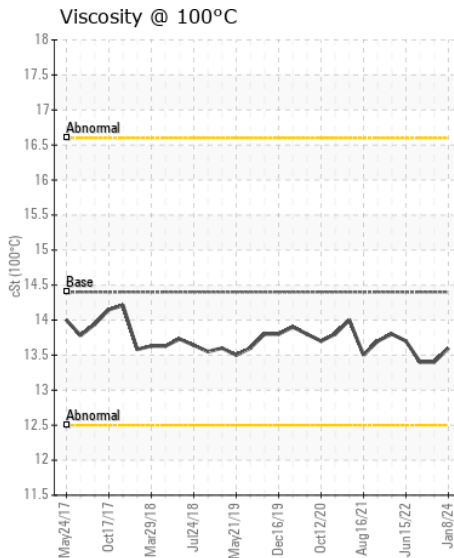
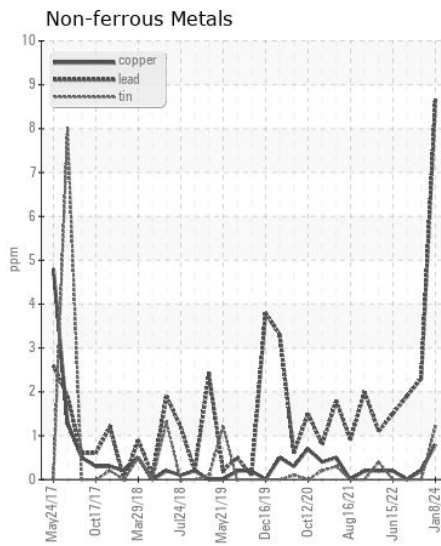
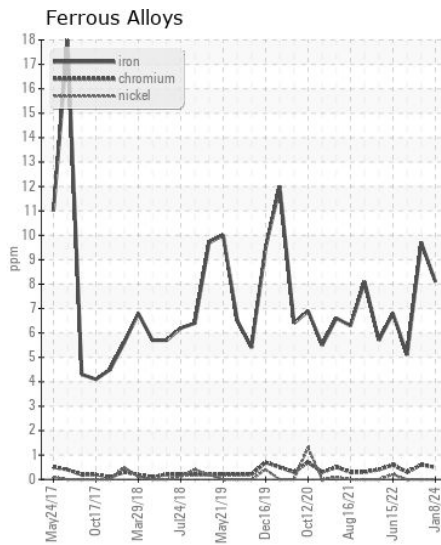
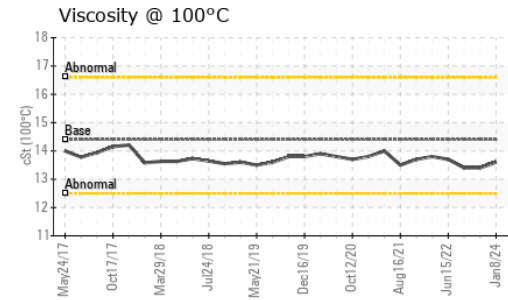
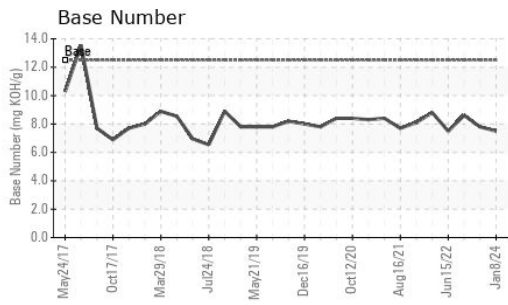
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>20	4	4	2
Potassium	ppm	ASTM D5185m	>20	2	3	4
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		0.5	0.4	0.5
Nitration	Abs/cm	*ASTM D7624	>20	8.4	8.6	9.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	19.2	18.7	20.2
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	6	4	4
Boron	ppm	ASTM D5185m	151	66	76	64
Barium	ppm	ASTM D5185m	0.4	0	1	2
Molybdenum	ppm	ASTM D5185m	250	35	33	34
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m	0	696	580	611
Calcium	ppm	ASTM D5185m	2046	1884	1566	1672
Phosphorus	ppm	ASTM D5185m	1043	836	708	739
Zinc	ppm	ASTM D5185m	943	1024	847	896
Sulfur	ppm	ASTM D5185m	5012	3638	2812	3497
Oxidation	Abs/.1mm	*ASTM D7414	>25	13.8	13.1	13.9
Base Number (BN)	mg KOH/g	ASTM D2896	12.5	7.5	7.8	8.6
Visc @ 100°C	cSt	ASTM D445	14.4	13.6	13.4	13.4



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0057306 **Received** : 12 Jan 2024
Lab Number : 06058949 **Diagnosed** : 15 Jan 2024
Unique Number : 10830331 **Diagnostician** : Don Baldrige
Test Package : MAR 2

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)

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F: