



WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
SUSAN DUFRIEND (S/N 63102-2)
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		MW0052152	MW0042813	MW0042810
Sample Date		Client Info		10 Apr 2024	13 Dec 2023	21 Sep 2023
Machine Age	hrs	Client Info		515	52409	50960
Oil Age	hrs	Client Info		515	1449	1500
Filter Age	hrs	Client Info		515	1449	1500
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	6	7	8
Chromium	ppm	ASTM D5185m	>8	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	<1	0
Titanium	ppm	ASTM D5185m	>3	10	11	12
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	<1	2	0
Lead	ppm	ASTM D5185m	>18	0	4	2
Copper	ppm	ASTM D5185m	>80	3	0	<1
Tin	ppm	ASTM D5185m	>14	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

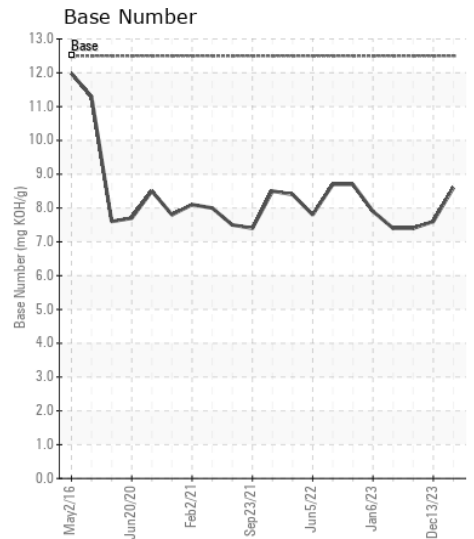
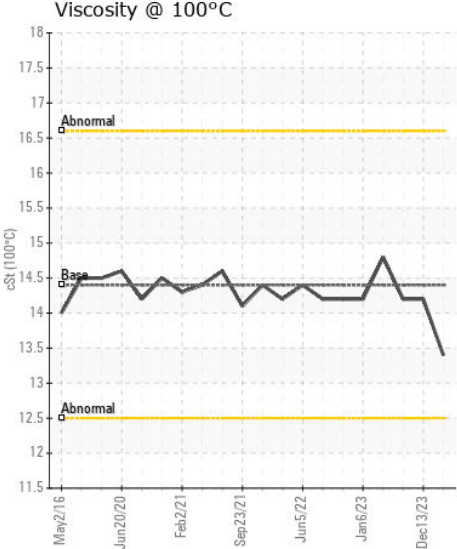
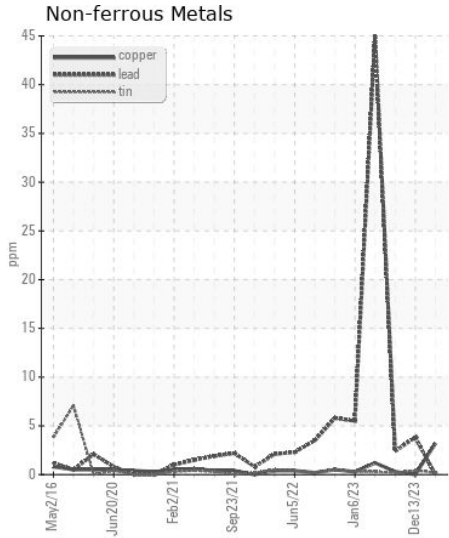
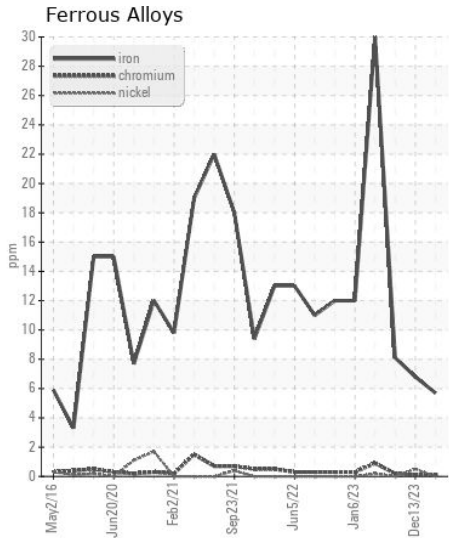
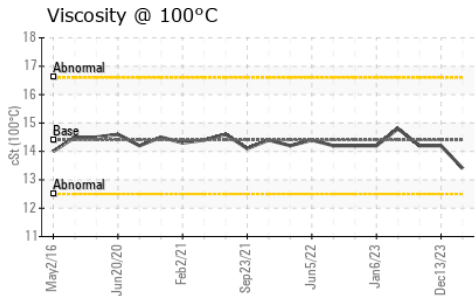
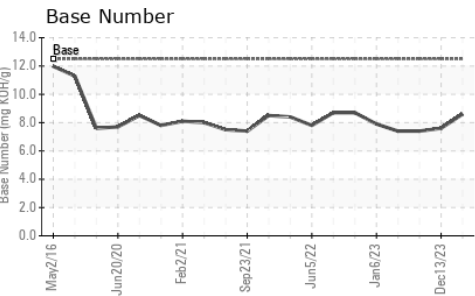
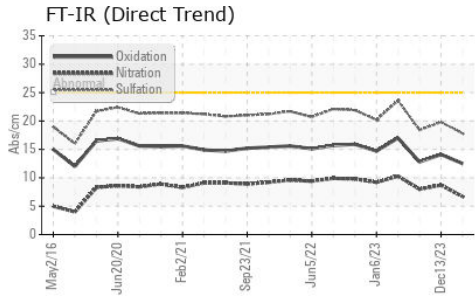
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>20	11	3	4
Potassium	ppm	ASTM D5185m	>20	1	4	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		0.1	0.6	0.5
Nitration	Abs/cm	*ASTM D7624	>20	6.7	8.7	8.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	17.8	19.8	18.4
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	5	2
Boron	ppm	ASTM D5185m	151	103	73	71
Barium	ppm	ASTM D5185m	0.4	<1	0	<1
Molybdenum	ppm	ASTM D5185m	250	27	35	39
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m	0	604	622	557
Calcium	ppm	ASTM D5185m	2046	1739	1654	1650
Phosphorus	ppm	ASTM D5185m	1043	744	824	765
Zinc	ppm	ASTM D5185m	943	868	944	916
Sulfur	ppm	ASTM D5185m	5012	3522	3167	3229
Oxidation	Abs/.1mm	*ASTM D7414	>25	12.5	14.1	12.8
Base Number (BN)	mg KOH/g	ASTM D2896	12.5	8.6	7.6	7.4
Visc @ 100°C	cSt	ASTM D445	14.4	13.4	14.2	14.2



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0052152
Lab Number : 06158324
Unique Number : 10993747
Test Package : MAR 2

Received : 23 Apr 2024
Tested : 24 Apr 2024
Diagnosed : 25 Apr 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)