



WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
CSP
Machine Id
CSP
Component
Starboard Main Engine
Fluid
CHEVRON DELO 710 LS (450 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0061162	MW0061125	MW0061117
Sample Date		Client Info		01 Jun 2024	17 Feb 2024	07 Nov 2023
Machine Age	hrs	Client Info		116321	113769	111409
Oil Age	hrs	Client Info		21737	19226	17297
Filter Age	hrs	Client Info		1155	1151	1250
Oil Changed		Client Info		Not Chngd	Not Chngd	Not Chngd
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	8	5
Chromium	ppm	ASTM D5185m	>8	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m	>3	0	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	2	1	2
Lead	ppm	ASTM D5185m	>18	4	4	<1
Copper	ppm	ASTM D5185m	>80	12	15	<1
Tin	ppm	ASTM D5185m	>14	3	4	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

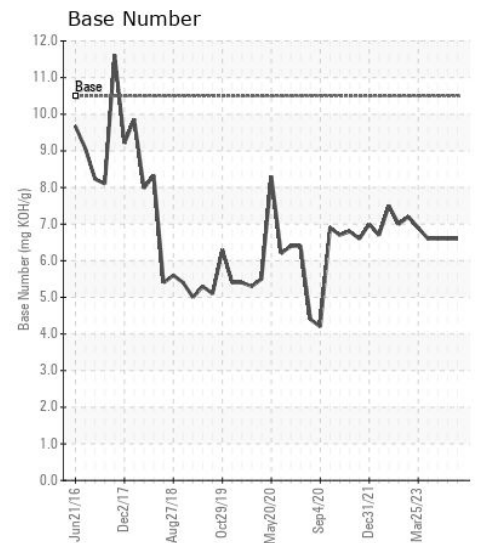
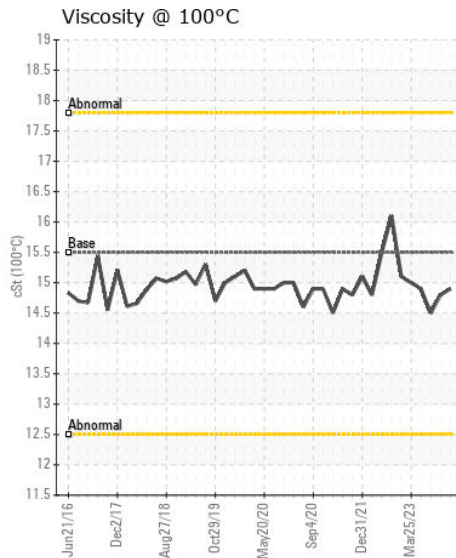
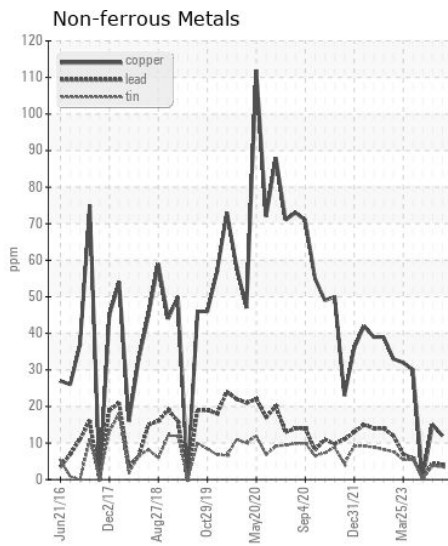
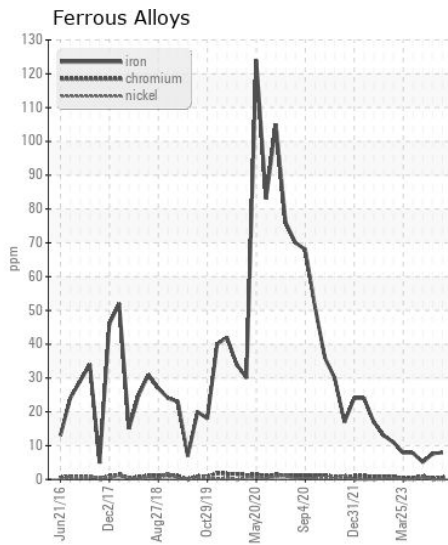
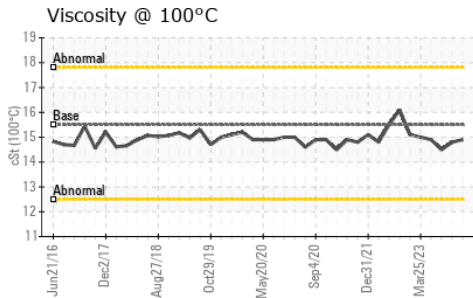
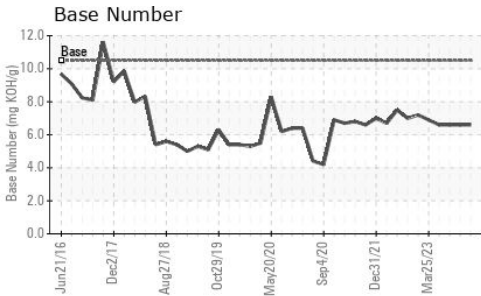
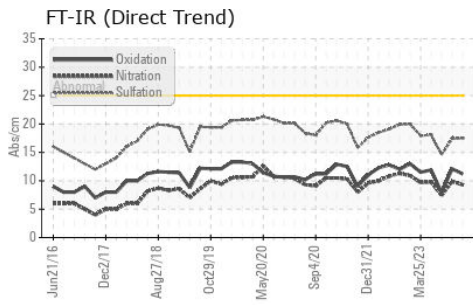
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>20	2	2	3
Potassium	ppm	ASTM D5185m	>20	0	0	3
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	>3	0.3	0.2	0.1
Nitration	Abs/cm	*ASTM D7624	>20	9.3	9.9	7.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	17.5	17.4	14.6
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	3	<1	0
Boron	ppm	ASTM D5185m		38	37	43
Barium	ppm	ASTM D5185m		0	0	12
Molybdenum	ppm	ASTM D5185m		49	48	48
Manganese	ppm	ASTM D5185m		<1	0	<1
Magnesium	ppm	ASTM D5185m		10	10	9
Calcium	ppm	ASTM D5185m		3913	3798	3408
Phosphorus	ppm	ASTM D5185m		1	0	28
Zinc	ppm	ASTM D5185m		2	0	4
Sulfur	ppm	ASTM D5185m		2675	2682	2223
Oxidation	Abs/.1mm	*ASTM D7414	>25	11.2	12.1	7.9
Base Number (BN)	mg KOH/g	ASTM D2896	10.5	6.6	6.6	6.6
Visc @ 100°C	cSt	ASTM D445	15.5	14.9	14.8	14.5



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0061162
Lab Number : 06217962
Unique Number : 11096159
Test Package : MAR 2

Received : 24 Jun 2024
Tested : 25 Jun 2024
Diagnosed : 25 Jun 2024 - Wes Davis

AMERICAN RIVER TRANSPORTATION CO.
 P.O. BOX 2889
 ST. LOUIS, MO
 US 63111
 Contact: BRIAN GRIEWING
 brian.griewing@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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