



WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
RICHARD E WAUGH
Machine Id
[RICHARD E WAUGH] 003 545079-3
Component
Starboard Main Engine
Fluid
CHEVRON DELO 710 LE (250 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0063151	MW0049893	MW0049887
Sample Date		Client Info		01 Jan 2024	01 Dec 2023	01 Nov 2023
Machine Age	hrs	Client Info		4501	3757	3037
Oil Age	hrs	Client Info		0	3757	3037
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Filter Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	21	19	17
Chromium	ppm	ASTM D5185m	>8	2	1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m	>3	0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	2	2	2
Lead	ppm	ASTM D5185m	>18	7	6	6
Copper	ppm	ASTM D5185m	>80	12	12	10
Tin	ppm	ASTM D5185m	>14	7	6	5
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

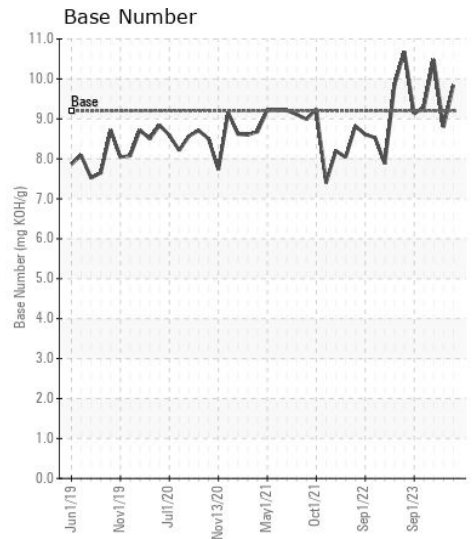
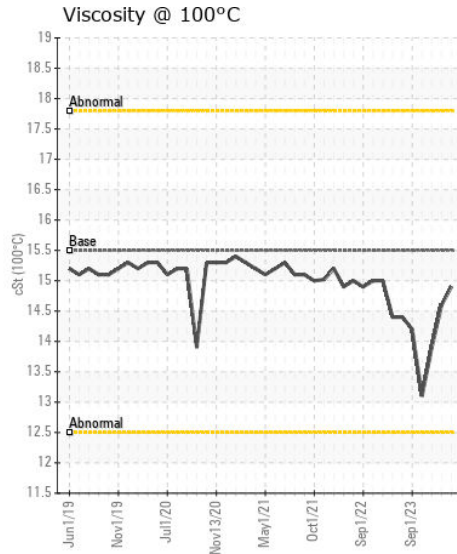
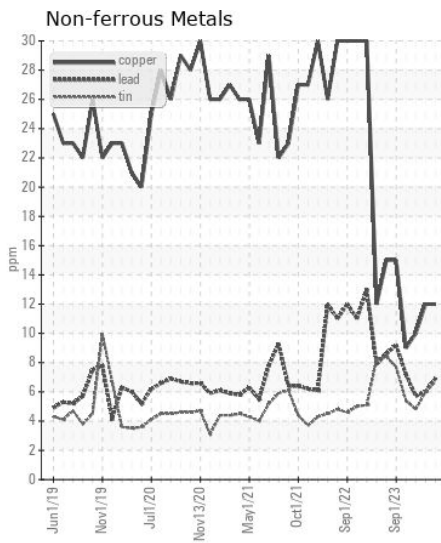
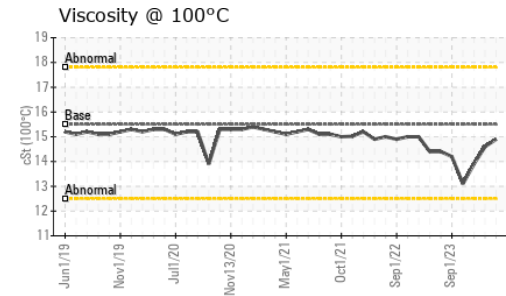
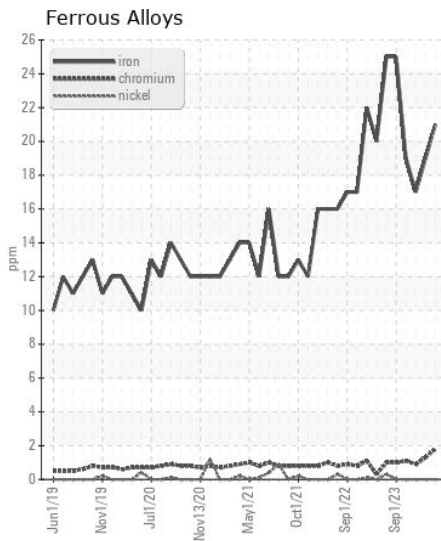
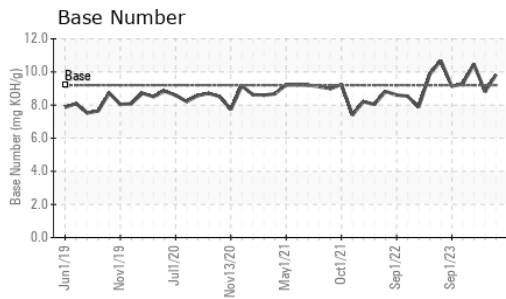
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>20	5	6	5
Potassium	ppm	ASTM D5185m	>20	<1	0	1
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	0.6	0.6	0.5
Nitration	Abs/cm	*ASTM D7624	>20	8.5	8.1	7.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	16.8	16.1	15.9
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	<1	3
Boron	ppm	ASTM D5185m		37	38	41
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		45	42	40
Manganese	ppm	ASTM D5185m		1	1	<1
Magnesium	ppm	ASTM D5185m		11	14	28
Calcium	ppm	ASTM D5185m		3488	3419	3199
Phosphorus	ppm	ASTM D5185m		<1	4	8
Zinc	ppm	ASTM D5185m	10	0	0	16
Sulfur	ppm	ASTM D5185m		2523	2268	2315
Oxidation	Abs/.1mm	*ASTM D7414	>25	9.3	8.5	7.8
Base Number (BN)	mg KOH/g	ASTM D2896	9.2	9.84	8.80	10.48
Visc @ 100°C	cSt	ASTM D445	15.5	14.9	14.6	13.9



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0063151 **Received** : 08 Jan 2024
Lab Number : 06054116 **Diagnosed** : 09 Jan 2024
Unique Number : 10820065 **Diagnostician** : Wes Davis
Test Package : MAR 2

INGRAM BARGE
 900 S 3RD ST
 PADUCAH, KY
 US 42003
 Contact: ANTHONY VAN CURA
 anthony.vancura@ingrambarga.com
 T: (270)415-4467
 F: (615)695-3697

Certificate L2367
 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)