



Area
JOHN M RIVERS
Machine Id
[JOHN M RIVERS] 003 633894-3
Component
Starboard Main Engine
Fluid
CHEVRON DELO 710 LS (325 GAL)

RECOMMENDATION

No corrective action is recommended at this time. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0058707	MW0065758	MW0066188
Sample Date		Client Info		01 May 2024	01 Apr 2024	01 Feb 2024
Machine Age	hrs	Client Info		3907	3255	3043
Oil Age	hrs	Client Info		3907	3255	3043
Filter Age	hrs	Client Info		0	0	212
Oil Changed		Client Info		N/A	N/A	Not Changd
Filter Changed		Client Info		N/A	N/A	N/A
Sample Status				ABNORMAL	ATTENTION	ATTENTION

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	37	36	27
Chromium	ppm	ASTM D5185m	>8	2	2	<1
Nickel	ppm	ASTM D5185m	>2	<1	0	<1
Titanium	ppm	ASTM D5185m	>3	<1	<1	<1
Silver	ppm	ASTM D5185m	>2	<1	<1	0
Aluminum	ppm	ASTM D5185m	>15	3	2	2
Lead	ppm	ASTM D5185m	>18	13	12	9
Copper	ppm	ASTM D5185m	>80	22	21	14
Tin	ppm	ASTM D5185m	>14	12	12	8
Vanadium	ppm	ASTM D5185m		<1	<1	0
White Metal	scalar	*Visual	NONE	NONE	LIGHT	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

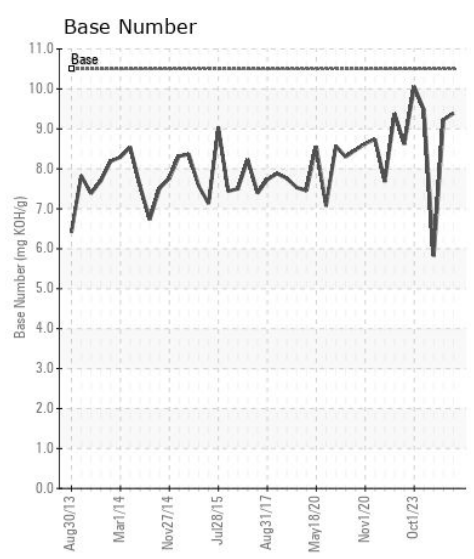
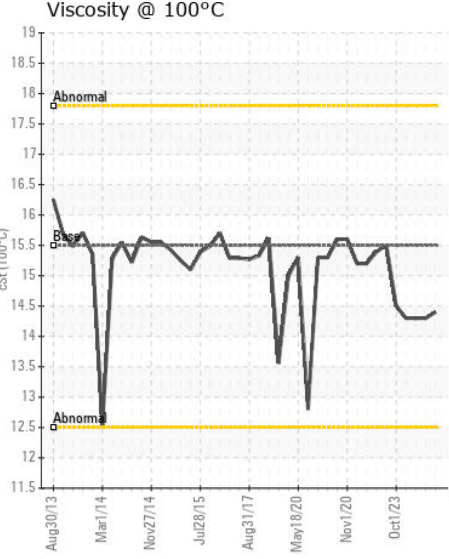
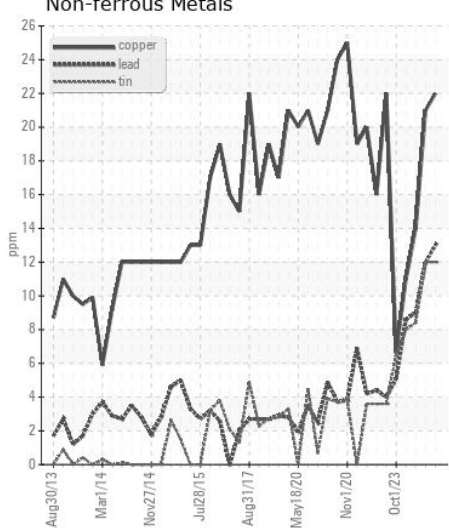
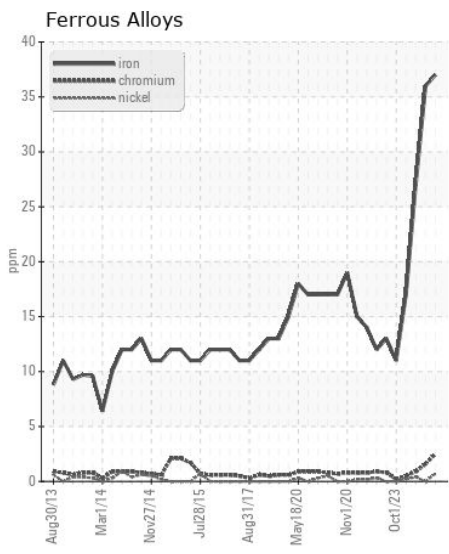
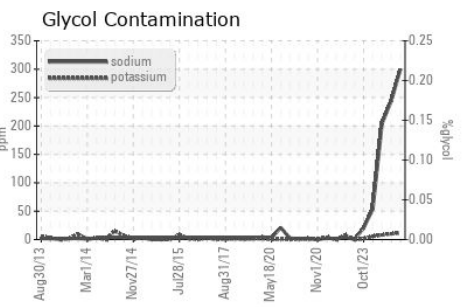
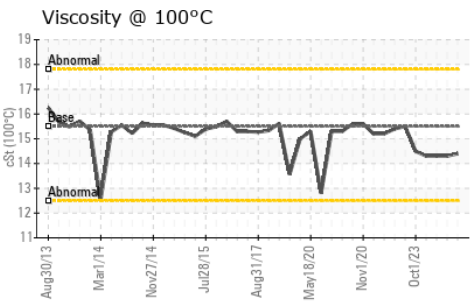
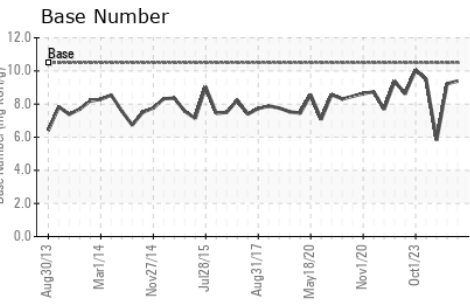
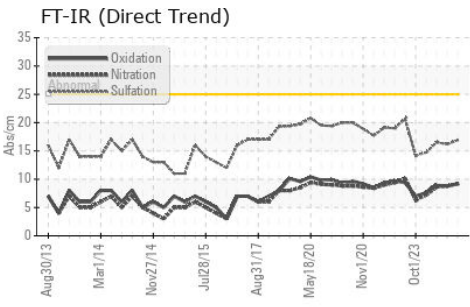
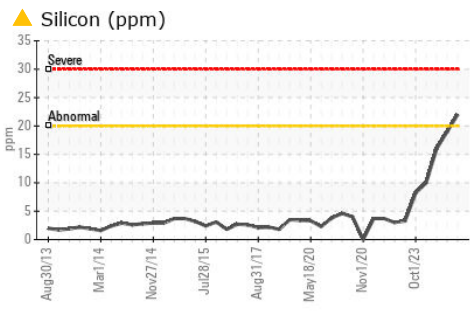
The high sodium (Na) level indicates the possible presence of salt water. Elemental level of sodium (Na) and/or boron (B) indicates a possible cooling water leak. Elemental level of silicon (Si) above normal indicating ingress of seal material.

Silicon	ppm	ASTM D5185m	>20	▲ 22	19	16
Potassium	ppm	ASTM D5185m	>20	12	10	8
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol	%	*ASTM D2982		NEG	NEG	NEG
Soot %	%	*ASTM D7844		0.4	0.3	0.3
Nitration	Abs/cm	*ASTM D7624	>20	9.2	8.8	8.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	16.9	16.2	16.5
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	● 300	● 244	● 204
Boron	ppm	ASTM D5185m		98	92	75
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		48	49	37
Manganese	ppm	ASTM D5185m		3	2	2
Magnesium	ppm	ASTM D5185m		14	14	16
Calcium	ppm	ASTM D5185m		3369	3384	2301
Phosphorus	ppm	ASTM D5185m		20	22	21
Zinc	ppm	ASTM D5185m		15	17	23
Sulfur	ppm	ASTM D5185m		2822	2665	1748
Oxidation	Abs/.1mm	*ASTM D7414	>25	9.2	8.8	8.9
Base Number (BN)	mg KOH/g	ASTM D2896	10.5	9.39	9.23	5.82
Visc @ 100°C	cSt	ASTM D445	15.5	14.4	14.3	14.3



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0058707 **Received** : 21 May 2024
Lab Number : 06186383 **Tested** : 23 May 2024
Unique Number : 11043135 **Diagnosed** : 23 May 2024 - Sean Felton
Test Package : MAR 2 (Additional Tests: Glycol)

INGRAM BARGE
 900 S 3RD ST
 PADUCAH, KY
 US 42003
 Contact: JEFF BISHOP
 jeff.bishop@ingrambarga.com
 T:
 F: (615)695-3697

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)