



WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
VQU
Machine Id
Component
VQU (S/N 10-B1-1005)
Starboard Main Engine
Fluid
CHEVRON DELO 710 LS (350 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0060720	MW0060710	MW0050885
Sample Date		Client Info		22 Feb 2024	06 Jan 2024	11 Nov 2023
Machine Age	hrs	Client Info		13670	12544	90078
Oil Age	hrs	Client Info		7300	6174	4222
Filter Age	hrs	Client Info		1126	1356	1179
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	16	14	15
Chromium	ppm	ASTM D5185m	>8	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	1	<1
Titanium	ppm	ASTM D5185m	>3	<1	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	1	2	2
Lead	ppm	ASTM D5185m	>18	5	4	3
Copper	ppm	ASTM D5185m	>80	11	10	11
Tin	ppm	ASTM D5185m	>14	5	5	4
Vanadium	ppm	ASTM D5185m		<1	<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.

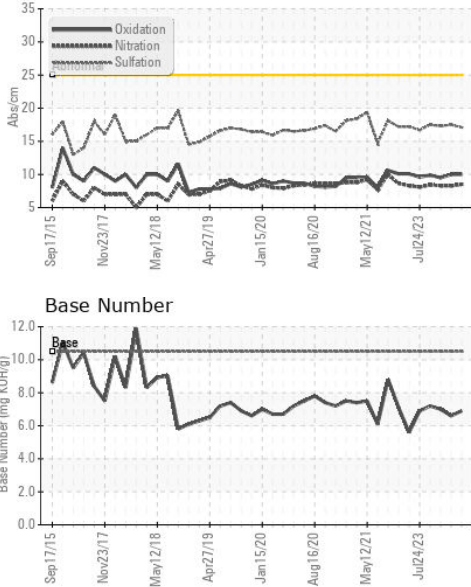
Silicon	ppm	ASTM D5185m	>20	3	2	3
Potassium	ppm	ASTM D5185m	>20	0	0	<1
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.4	0.5	0.7
Nitration	Abs/cm	*ASTM D7624	>20	8.5	8.3	8.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	17.1	17.5	17.3
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

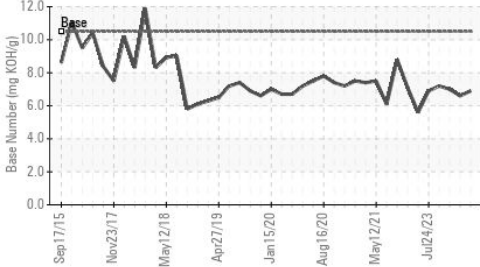
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m	>75	1	<1	2
Boron	ppm	ASTM D5185m		40	41	38
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		47	44	43
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		29	16	14
Calcium	ppm	ASTM D5185m		3581	3410	3546
Phosphorus	ppm	ASTM D5185m		15	3	3
Zinc	ppm	ASTM D5185m		16	0	0
Sulfur	ppm	ASTM D5185m		2585	2155	2258
Oxidation	Abs/.1mm	*ASTM D7414	>25	10.0	10.0	9.5
Base Number (BN)	mg KOH/g	ASTM D2896	10.5	6.9	6.6	7.0
Visc @ 100°C	cSt	ASTM D445	15.5	15.1	14.9	14.9

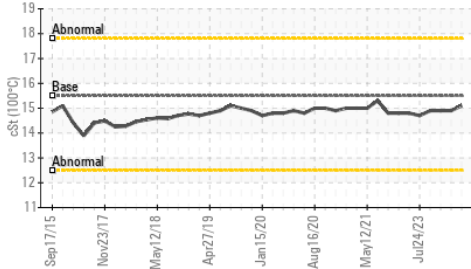
FT-IR (Direct Trend)



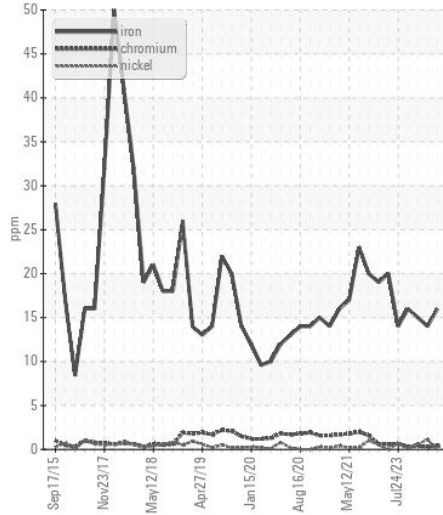
Base Number



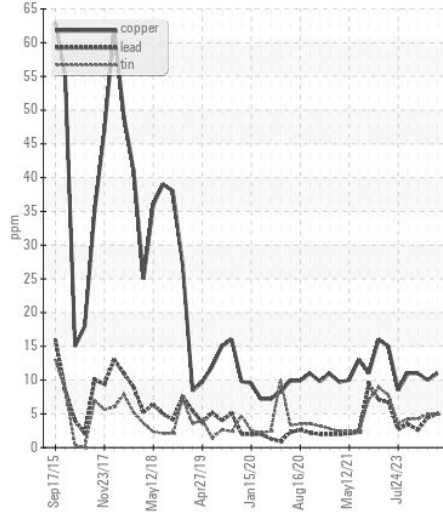
Viscosity @ 100°C



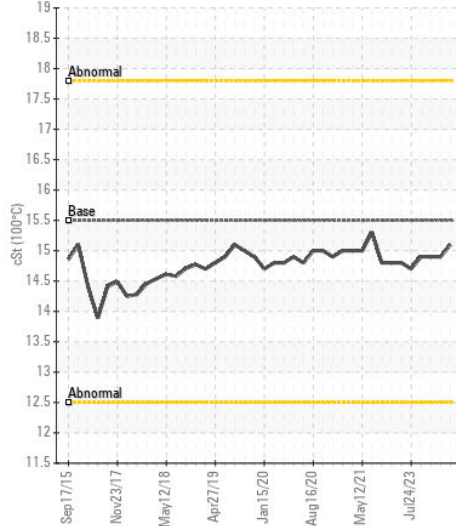
Ferrous Alloys



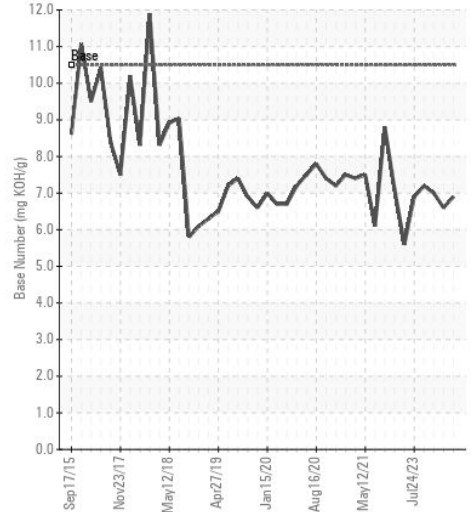
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0060720
Lab Number : 06153927
Unique Number : 10989350
Test Package : MAR 2

Received : 19 Apr 2024
Tested : 22 Apr 2024
Diagnosed : 22 Apr 2024 - Wes Davis

AMERICAN RIVER TRANSPORTATION CO.
 P.O. BOX 2889
 ST. LOUIS, MO
 US 63111

Contact: GERALD DOWNING
 g_downing@admworld.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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