



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
SAMUEL RIS
Machine Id
S30-2213 Main Propulsion Engine
Component
3 Main Engine
Fluid
CASTROL TLX PLUS 303 (670 LTR)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0759137	WC0638084	WC0759146
Sample Date		Client Info		21 May 2024	15 Mar 2024	04 Aug 2023
Machine Age	hrs	Client Info		54429	54118	53816
Oil Age	hrs	Client Info		1426	1115	321
Filter Age	hrs	Client Info		1426	1115	813
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Filter Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185(m)	>25	14	14	14
Chromium	ppm	ASTM D5185(m)	>5	1	2	3
Nickel	ppm	ASTM D5185(m)	>5	0	<1	0
Titanium	ppm	ASTM D5185(m)	>3	0	0	0
Silver	ppm	ASTM D5185(m)	>2	0	0	0
Aluminum	ppm	ASTM D5185(m)	>10	5	5	5
Lead	ppm	ASTM D5185(m)	>5	0	0	0
Copper	ppm	ASTM D5185(m)	>5	<1	<1	<1
Tin	ppm	ASTM D5185(m)	>5	<1	1	1
Vanadium	ppm	ASTM D5185(m)		0	0	<1
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.

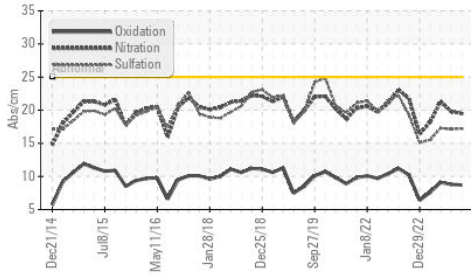
Silicon	ppm	ASTM D5185(m)	>20	8	8	10
Potassium	ppm	ASTM D5185(m)	>20	4	5	6
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	ASTM D7844*	>2	0.3	0.4	0.5
Nitration	Abs/cm	ASTM D7624*	>20	19.5	19.8	21.3
Sulfation	Abs/.1mm	ASTM D7415*	>30	17.2	17.1	17.3
Silt	scalar	Visual*	NONE	NONE	NONE	VLITE
Debris	scalar	Visual*	NONE	NONE	VLITE	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

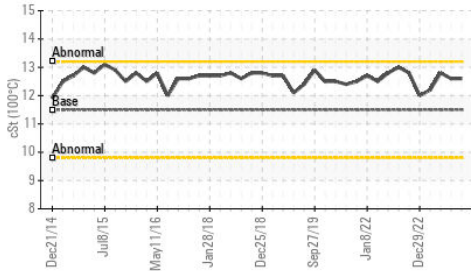
The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185(m)	>75	9	9	9
Boron	ppm	ASTM D5185(m)		10	12	14
Barium	ppm	ASTM D5185(m)		<1	<1	<1
Molybdenum	ppm	ASTM D5185(m)		<1	0	1
Manganese	ppm	ASTM D5185(m)		<1	<1	<1
Magnesium	ppm	ASTM D5185(m)		60	65	72
Calcium	ppm	ASTM D5185(m)	12000	12304	13022	13469
Phosphorus	ppm	ASTM D5185(m)	400	443	445	500
Zinc	ppm	ASTM D5185(m)	400	490	500	521
Sulfur	ppm	ASTM D5185(m)	12000	2455	2510	2742
Oxidation	Abs/.1mm	ASTM D7414*	>25	8.7	8.8	9.1
Visc @ 100°C	cSt	ASTM D7279(m)	11.5	12.6	12.6	12.8

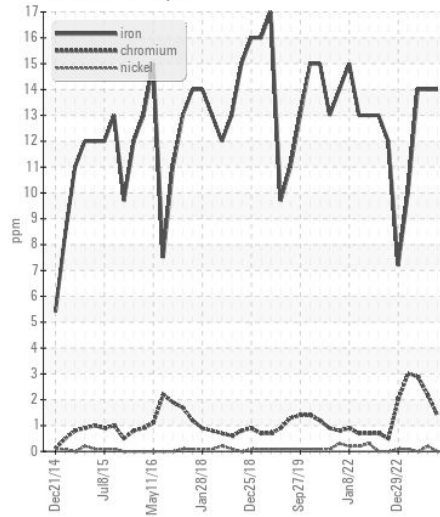
FT-IR (Direct Trend)



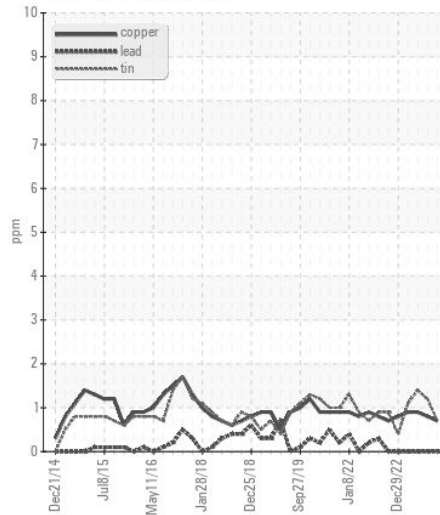
Viscosity @ 100°C



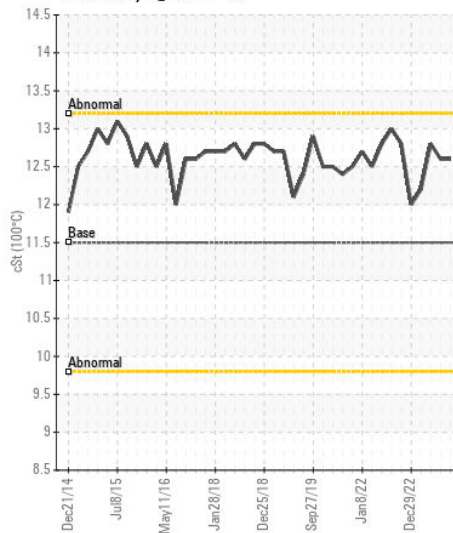
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0759137
Lab Number : **02637814**
Unique Number : 5786976
Test Package : MAR 1

CANADIAN COAST GUARD
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To discuss this sample report, contact Customer Service at 1-800-268-2131.
 Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
 Validity of results and interpretation are based on the sample and information as supplied.