



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINANTS	NORMAL
OIL CONDITION	NORMAL

Area
Propulsion/Salle des Machines
 Machine Id
12A02#01 (S/N M4110-R)
 Component
1 Diesel Engine
 Fluid
PETRO CANADA RALUBE 40 CFS (720 LTR)

RECOMMENDATION

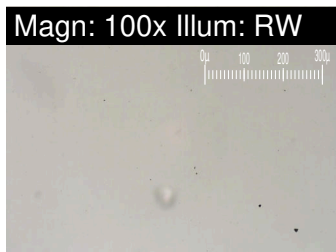
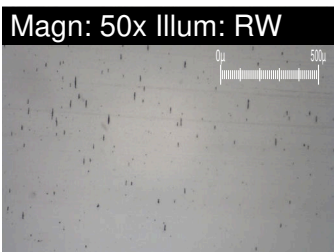
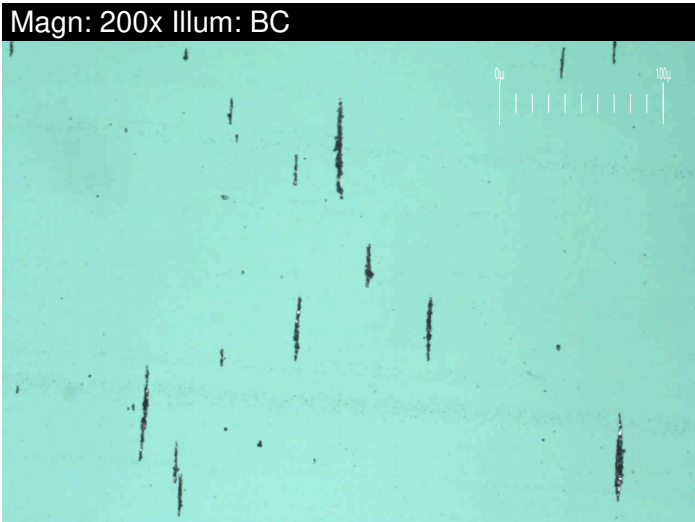
Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0751426	WC0751419	WC
Sample Date		Client Info		24 Oct 2023	05 Apr 2023	18 Oct 2022
Machine Age	hrs	Client Info		19103	18308	17964
Oil Age	hrs	Client Info		723	1225	881
Filter Age	hrs	Client Info		723	1225	881
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Filter Changed		Client Info		N/A	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal. The ferrography results are normal indicating no abnormal wear in the system.

PQ		ASTM D8184*		0	0	---
Iron	ppm	ASTM D5185(m)	>100	5	5	5
Chromium	ppm	ASTM D5185(m)	>20	0	<1	<1
Nickel	ppm	ASTM D5185(m)	>4	<1	<1	0
Titanium	ppm	ASTM D5185(m)		0	0	0
Silver	ppm	ASTM D5185(m)	>3	<1	0	0
Aluminum	ppm	ASTM D5185(m)	>20	2	2	2
Lead	ppm	ASTM D5185(m)	>40	<1	<1	<1
Copper	ppm	ASTM D5185(m)	>330	<1	<1	<1
Tin	ppm	ASTM D5185(m)	>15	0	<1	<1
Vanadium	ppm	ASTM D5185(m)		0	0	0
Large Particles		DR-Ferr*		4.0	6.0	---
Small Particles		DR-Ferr*		2.1	5.0	---
Total Particles		DR-Ferr*	>---	6.1	11	---
Large Particles Percentage	%	DR-Ferr*		31.1	9.1	---
Severity Index		DR-Ferr*		8	6	---
Ferrous Rubbing	Scale 0-10	ASTM D7684*		3	2	
Ferrous Sliding	Scale 0-10	ASTM D7684*				
Ferrous Cutting	Scale 0-10	ASTM D7684*				
Ferrous Rolling	Scale 0-10	ASTM D7684*		1	1	
Ferrous Break-in	Scale 0-10	ASTM D7684*				
Ferrous Spheres	Scale 0-10	ASTM D7684*				
Ferrous Black Oxides	Scale 0-10	ASTM D7684*		1		
Ferrous Red Oxides	Scale 0-10	ASTM D7684*				
Ferrous Corrosive	Scale 0-10	ASTM D7684*			1	
Ferrous Other	Scale 0-10	ASTM D7684*				
Nonferrous Rubbing	Scale 0-10	ASTM D7684*				
Nonferrous Sliding	Scale 0-10	ASTM D7684*				
Nonferrous Cutting	Scale 0-10	ASTM D7684*				
Nonferrous Rolling	Scale 0-10	ASTM D7684*				
Nonferrous Other	Scale 0-10	ASTM D7684*				



CONTAMINANTS

There is no indication of any contamination in the oil.

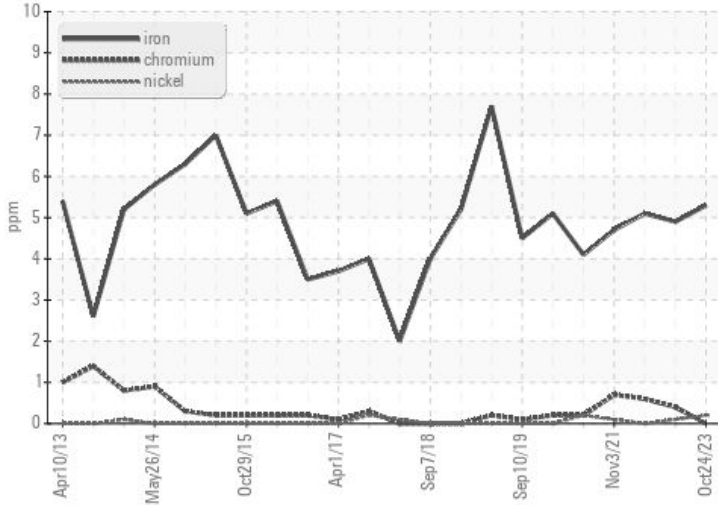
Silicon	ppm	ASTM D5185(m)	>25	3	4	4
Potassium	ppm	ASTM D5185(m)	>20	0	3	1
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	ASTM D7844*	>2	0	0	0
Nitration	Abs/cm	ASTM D7624*	>20	12.4	12.2	12.7
Sulfation	Abs/.1mm	ASTM D7415*	>30	14.4	14.3	15.3
Emulsified Water	scalar	Visual*	>0.2	NEG	NEG	NEG
Carbonaceous Material	Scale 0-10	ASTM D7684*				
Sand/Dirt	Scale 0-10	ASTM D7684*		1	1	
Fibres	Scale 0-10	ASTM D7684*				
Spheres	Scale 0-10	ASTM D7684*				
Other	Scale 0-10	ASTM D7684*		1	1	

OIL CONDITION

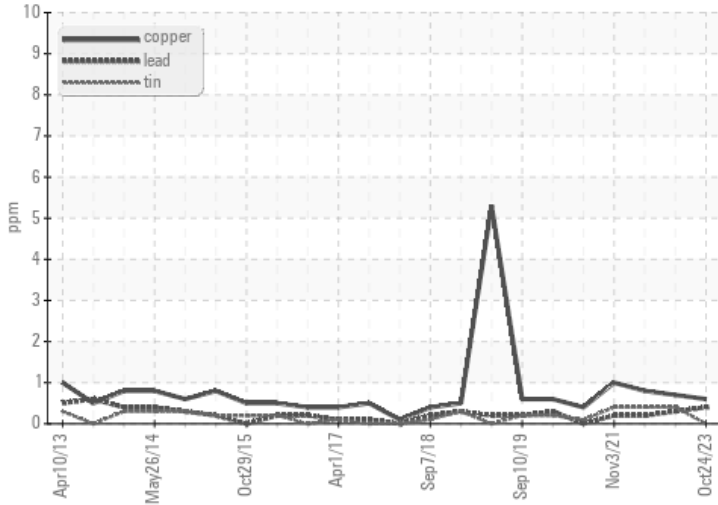
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185(m)		3	3	3
Boron	ppm	ASTM D5185(m)	0	<1	<1	<1
Barium	ppm	ASTM D5185(m)	0	<1	0	0
Molybdenum	ppm	ASTM D5185(m)	0	0	<1	<1
Manganese	ppm	ASTM D5185(m)	0	0	<1	<1
Magnesium	ppm	ASTM D5185(m)	25	16	23	21
Calcium	ppm	ASTM D5185(m)	4300	4735	4784	4771
Phosphorus	ppm	ASTM D5185(m)	1.6	4	3	2
Zinc	ppm	ASTM D5185(m)	2	6	5	5
Sulfur	ppm	ASTM D5185(m)	1500	3067	3160	3104
Oxidation	Abs/.1mm	ASTM D7414*	>25	10.3	10.5	11.1
Base Number (BN)	mg KOH/g	ASTM D2896*	14.0	13.65	13.51	---
Visc @ 100°C	cSt	ASTM D7279(m)	14.8	14.5	14.5	14.6
Lubricant Degradation	Scale 0-10	ASTM D7684*				

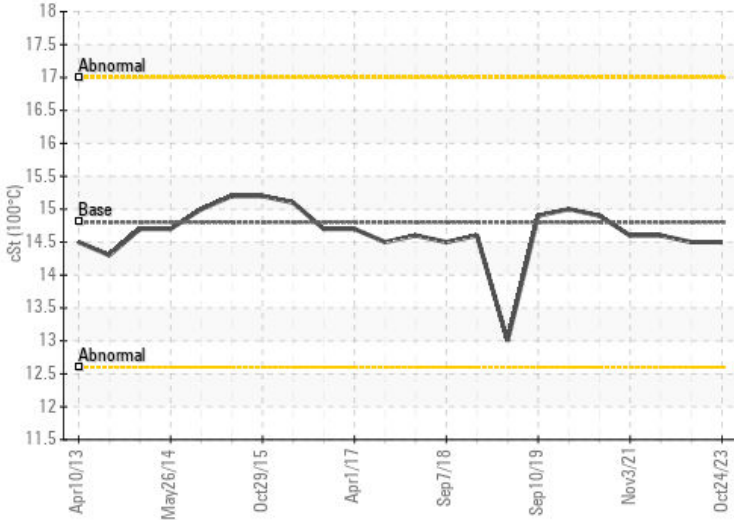
Ferrous Alloys



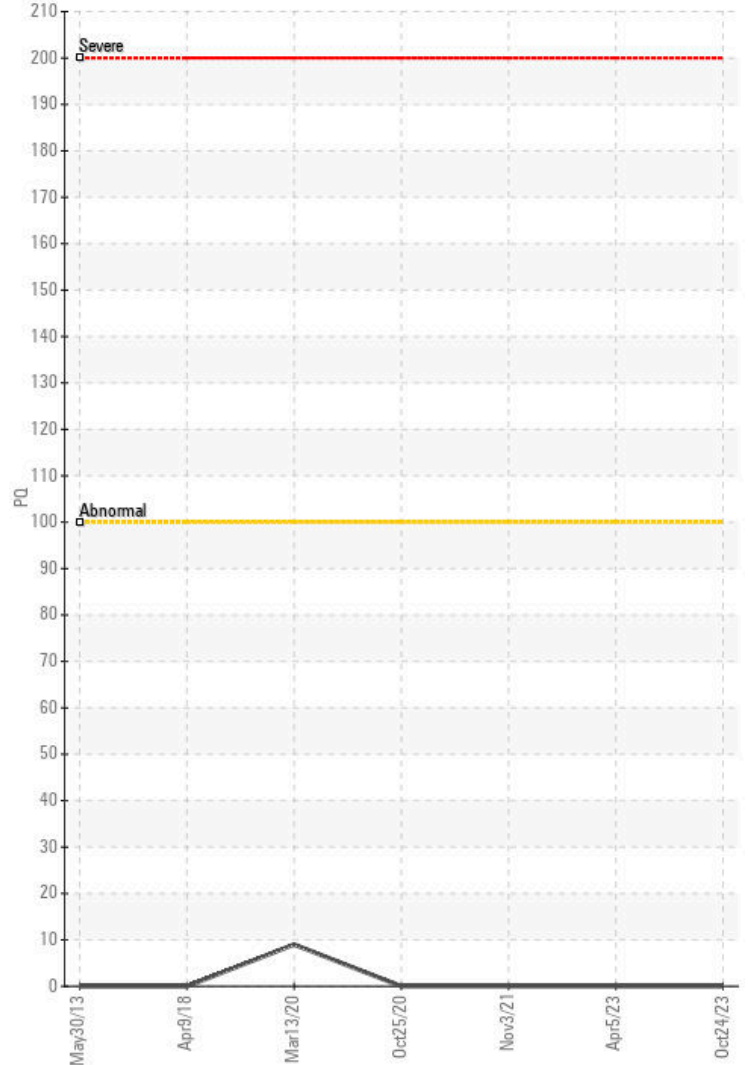
Non-ferrous Metals



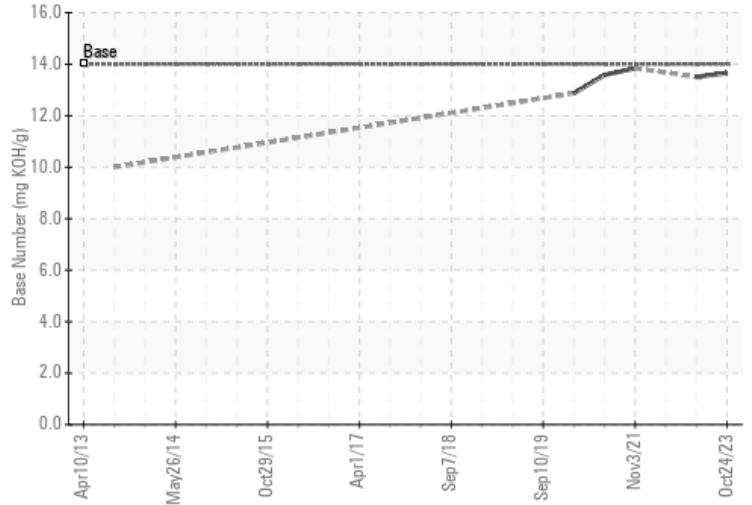
Viscosity @ 100°C



PQ



Base Number



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0751426
Lab Number : 02593088
Unique Number : 5670167
Test Package : MAR 3 (Additional Tests: BottomAnalysis, FILTERPATCH)
Received : 01 Nov 2023
Tested : 03 Nov 2023
Diagnosed : 03 Nov 2023 - Kevin Marson

Canadian Coast Guard
 CCGS Amundsen, 101 Boul. Champlain
 Quebec, QC
 CA G1K 7Y7
 Contact: Chief Engineer
 amundsense@ccgs-ngcc.gc.ca
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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.

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