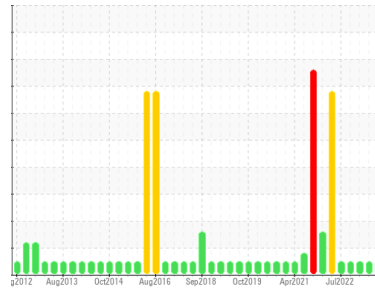




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id
L14-2211 PME (S/N T2P00702)
 Component
Port Main Engine
 Fluid
PETRO CANADA DURON HP 15W40 (70 LTR)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

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

Contaminants

There is no indication of any contamination in the oil.

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.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0821970	WC0729386	WC0729404
Sample Date	Client Info		14 Jun 2024	15 May 2023	06 Apr 2023
Machine Age	hrs	Client Info	23764	23212	22726
Oil Age	hrs	Client Info	500	500	538
Oil Changed	Client Info		Changed	Changed	Changed
Sample Status			NORMAL	NORMAL	NORMAL

CONTAMINATION

	method	limit/base	current	history1	history2
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

WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184*		0	0	0
Iron	ppm	ASTM D5185(m) >75	17	14	22
Chromium	ppm	ASTM D5185(m) >8	<1	0	<1
Nickel	ppm	ASTM D5185(m) >2	0	0	0
Titanium	ppm	ASTM D5185(m) >3	0	0	0
Silver	ppm	ASTM D5185(m) >2	0	0	0
Aluminum	ppm	ASTM D5185(m) >15	<1	<1	1
Lead	ppm	ASTM D5185(m) >18	<1	<1	<1
Copper	ppm	ASTM D5185(m) >80	3	2	6
Tin	ppm	ASTM D5185(m) >14	0	<1	<1
Antimony	ppm	ASTM D5185(m)	0	0	0
Vanadium	ppm	ASTM D5185(m)	0	0	0
Beryllium	ppm	ASTM D5185(m)	0	0	0
Cadmium	ppm	ASTM D5185(m)	0	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m) 0	2	2	1
Barium	ppm	ASTM D5185(m) 0	0	0	0
Molybdenum	ppm	ASTM D5185(m) 60	60	62	64
Manganese	ppm	ASTM D5185(m) 0	<1	<1	<1
Magnesium	ppm	ASTM D5185(m) 1010	991	1028	1066
Calcium	ppm	ASTM D5185(m) 1070	1052	1126	1173
Phosphorus	ppm	ASTM D5185(m) 1150	949	1068	1107
Zinc	ppm	ASTM D5185(m) 1270	1168	1195	1265
Sulfur	ppm	ASTM D5185(m) 2060	2441	2534	2631
Lithium	ppm	ASTM D5185(m)	<1	<1	<1

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m) >20	2	2	3
Sodium	ppm	ASTM D5185(m) >75	2	2	2
Potassium	ppm	ASTM D5185(m) >20	<1	<1	0

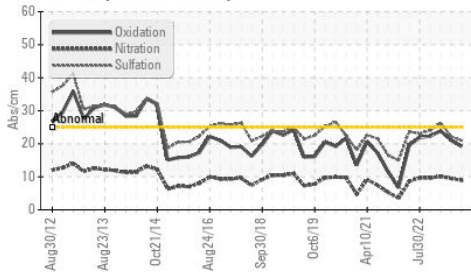
INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*	0.1	0.1	0
Nitration	Abs/cm	ASTM D7624* >20	8.9	9.5	10.1
Sulfation	Abs.1mm	ASTM D7415* >30	21.0	22.2	26.3

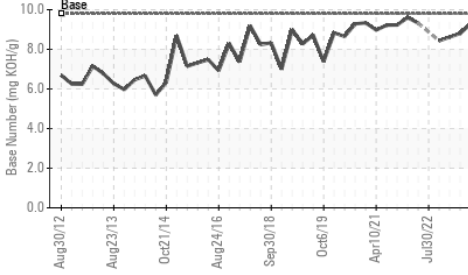


OIL ANALYSIS REPORT

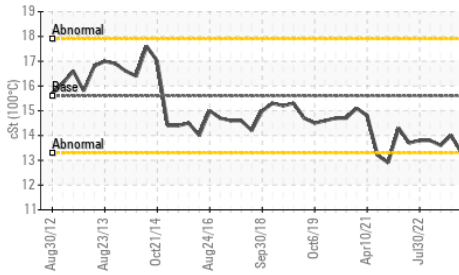
FT-IR (Direct Trend)



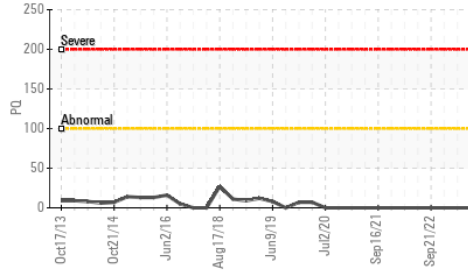
Base Number



Viscosity @ 100°C



PQ



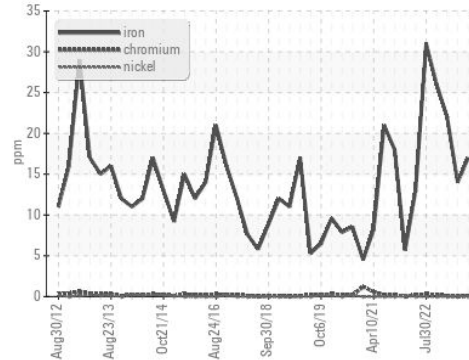
FLUID DEGRADATION	method	limit/base	current	history1	history2	
Oxidation	Abs./1mm	ASTM D7414*	>25	19.2	21.1	23.9
Base Number (BN)	mg KOH/g	ASTM D2896*	9.8	9.28	8.80	8.62

VISUAL	method	limit/base	current	history1	history2	
Emulsified Water	scalar	Visual*	>0.1	NEG	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG	NEG

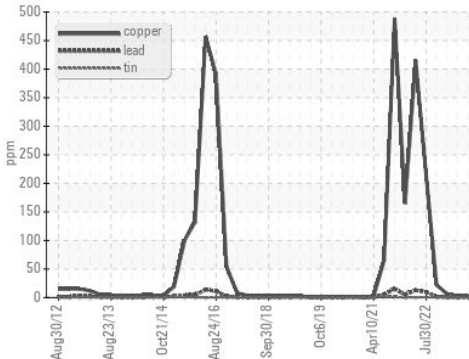
FLUID PROPERTIES	method	limit/base	current	history1	history2	
Visc @ 100°C	cSt	ASTM D7279(m)	15.6	13.3	14.0	13.6

GRAPHS

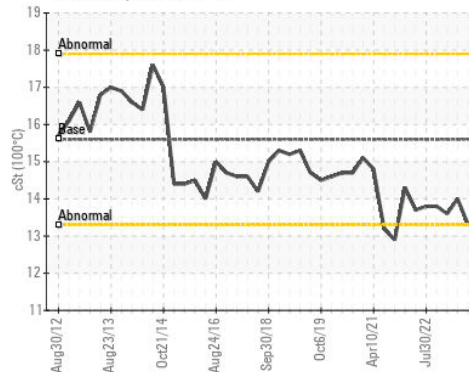
Ferrous Alloys



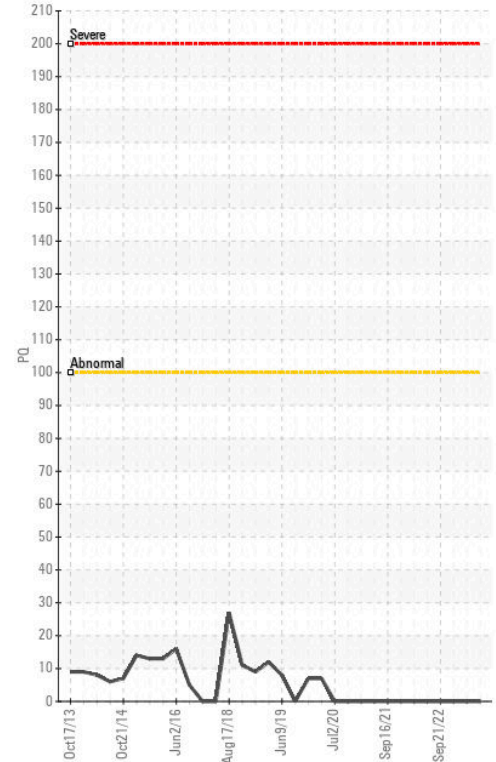
Non-ferrous Metals



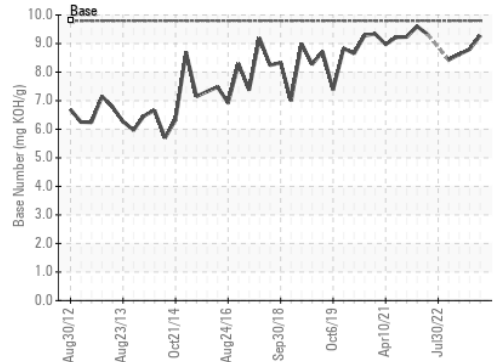
Viscosity @ 100°C



PQ



Base Number



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0821970
Lab Number : 02645121
Unique Number : 5802660
Test Package : MAR 3

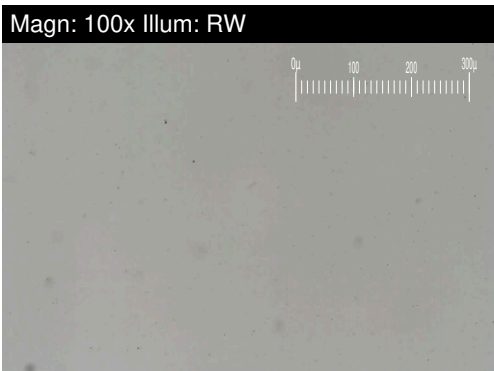
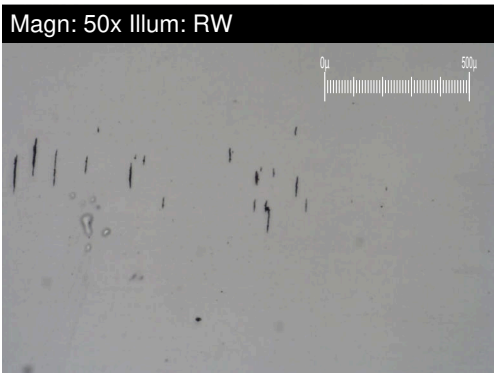
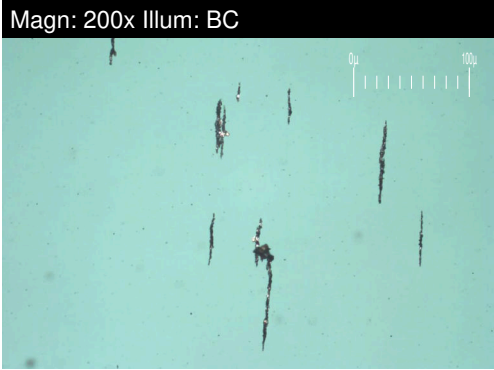
CANADIAN COAST GUARD
 CCGS LIMNOS, 867 LAKESHORE ROAD
 BURLINGTON, ON
 CA L7R 4A6
 Contact: Laurie Bosley
 Laurie.Bosley@dfo-mpo.gc.ca

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.

T:
 F: (519)383-1994

FERROGRAPHY REPORT

Machine Id
L14-2211 PME (S/N T2P00702)
 Component
Port Main Engine
 Fluid
PETRO CANADA DURON HP 15W40 (70 LTR)

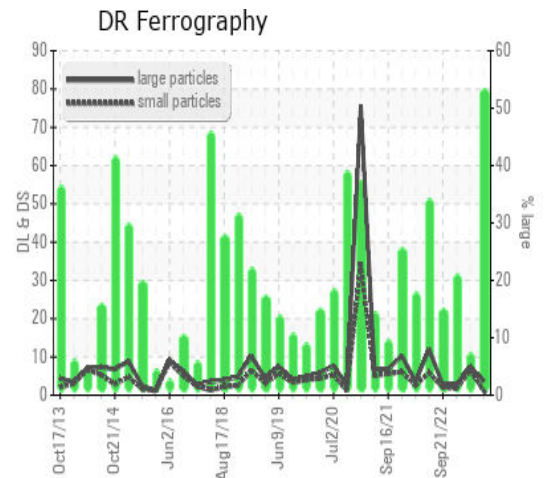


DR-FERROGRAPHY		method	limit/base	current	history1	history2
Large Particles		DR-Ferr*		3.6	7.4	2.6
Small Particles		DR-Ferr*		1.1	6.4	1.7
Total Particles		DR-Ferr*	>---	4.7	13.8	4.3
Large Particles Percentage	%	DR-Ferr*		53.2	7.2	20.9
Severity Index		DR-Ferr*		9	7	2

FERROGRAPHY		method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10	ASTM D7684*		2	1	1
Ferrous Sliding	Scale 0-10	ASTM D7684*				
Ferrous Cutting	Scale 0-10	ASTM D7684*				
Ferrous Rolling	Scale 0-10	ASTM D7684*		1	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*				
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*				
Carbonaceous Material	Scale 0-10	ASTM D7684*				
Lubricant Degradation	Scale 0-10	ASTM D7684*				
Sand/Dirt	Scale 0-10	ASTM D7684*		1	1	1
Fibres	Scale 0-10	ASTM D7684*				
Spheres	Scale 0-10	ASTM D7684*				
Other	Scale 0-10	ASTM D7684*		1	1	1

WEAR

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



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