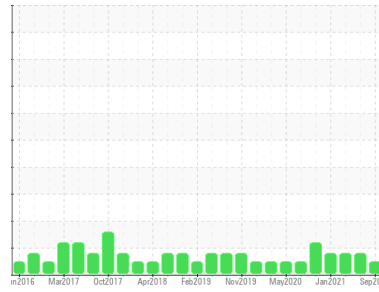




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id
Emergency Generator (S/N 40601268)
 Component
Diesel Engine
 Fluid
PETRO CANADA DURON HP 15W40 (30 LTR)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal. The direct-reading & analytical ferrographic 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		WC0490612	WC0432951	WC0490584
Sample Date	Client Info		17 Sep 2021	30 Jul 2021	06 Apr 2021
Machine Age	hrs	Client Info	1506	1502	1460
Oil Age	hrs	Client Info	0	70	0
Oil Changed	Client Info		Not Changed	Not Changd	Not Changed
Sample Status			NORMAL	MARGINAL	MARGINAL

CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>5	<1.0	▲ 3.4	▲ 4.9
Water	WC Method	>0.2	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) >80	<1	1	<1
Chromium	ppm	ASTM D5185(m) >4	0	0	0
Nickel	ppm	ASTM D5185(m) >4	0	<1	<1
Titanium	ppm	ASTM D5185(m)	0	0	0
Silver	ppm	ASTM D5185(m)	<1	<1	0
Aluminum	ppm	ASTM D5185(m) >10	<1	<1	<1
Lead	ppm	ASTM D5185(m) >15	<1	<1	0
Copper	ppm	ASTM D5185(m) >230	<1	<1	<1
Tin	ppm	ASTM D5185(m) >4	0	0	<1
Antimony	ppm	ASTM D5185(m)	<1	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	55	56	54
Manganese	ppm	ASTM D5185(m) 0	<1	<1	<1
Magnesium	ppm	ASTM D5185(m) 1010	956	917	915
Calcium	ppm	ASTM D5185(m) 1070	954	984	969
Phosphorus	ppm	ASTM D5185(m) 1150	1008	1049	961
Zinc	ppm	ASTM D5185(m) 1270	1143	1166	1166
Sulfur	ppm	ASTM D5185(m) 2060	2552	2595	2623
Lithium	ppm	ASTM D5185(m)	<1	<1	<1

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m) >25	3	3	4
Sodium	ppm	ASTM D5185(m)	1	1	2
Potassium	ppm	ASTM D5185(m) >20	<1	<1	<1

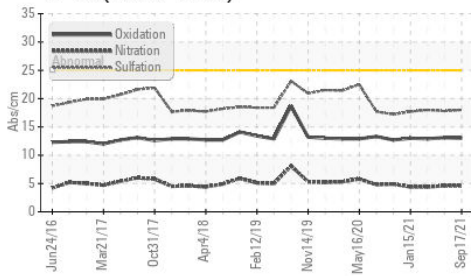
INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	ASTM D7844* >3	0	0	0
Nitration	Abs/cm	ASTM D7624* >20	4.6	4.6	4.4
Sulfation	Abs./1mm	ASTM D7415* >30	18.0	17.8	18.0

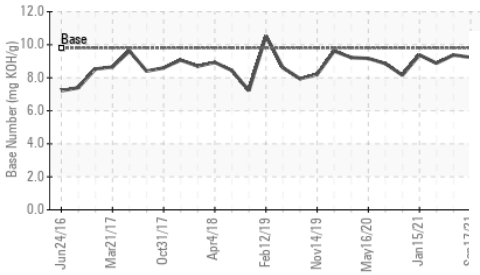


OIL ANALYSIS REPORT

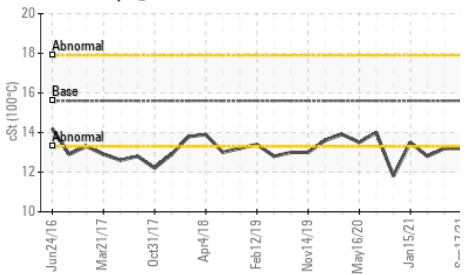
FT-IR (Direct Trend)



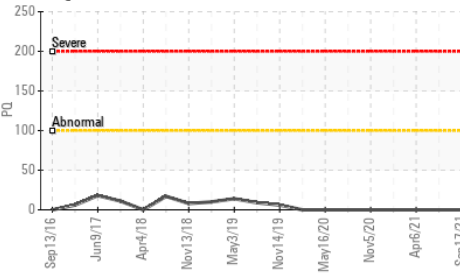
Base Number



Viscosity @ 100°C



PQ



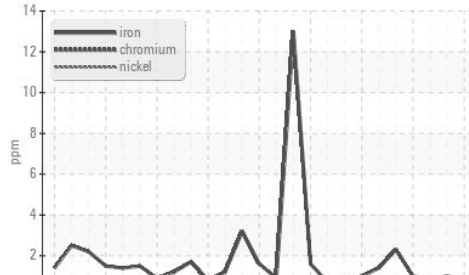
FLUID DEGRADATION	method	limit/base	current	history1	history2	
Oxidation	Abs./1mm	ASTM D7414*	>25	13.0	13.1	12.9
Base Number (BN)	mg KOH/g	ASTM D2896*	9.8	9.23	9.38	8.88

VISUAL	method	limit/base	current	history1	history2	
Emulsified Water	scalar	Visual*	>0.2	NEG	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG	NEG

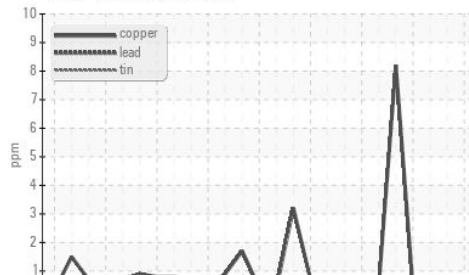
FLUID PROPERTIES	method	limit/base	current	history1	history2	
Visc @ 100°C	cSt	ASTM D7279(m)	15.6	13.2	13.2	12.8

GRAPHS

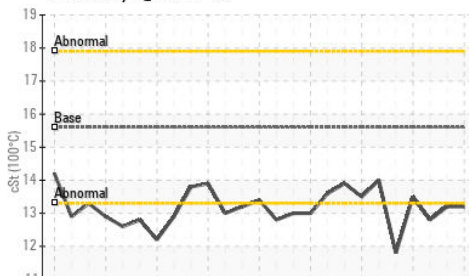
Ferrous Alloys



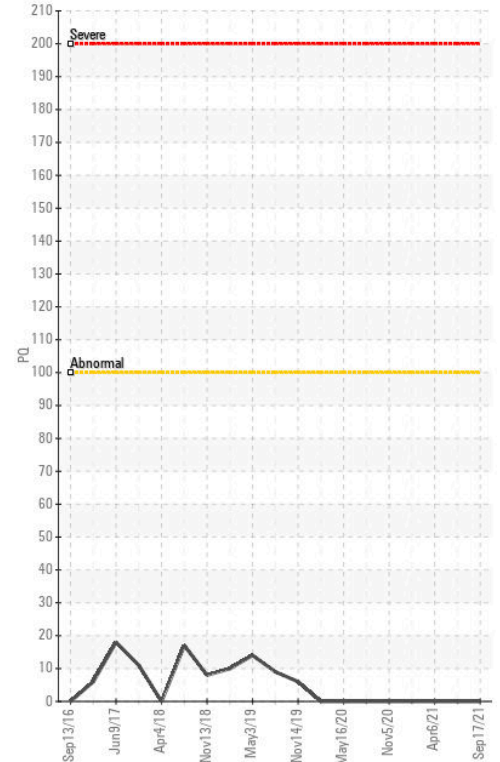
Non-ferrous Metals



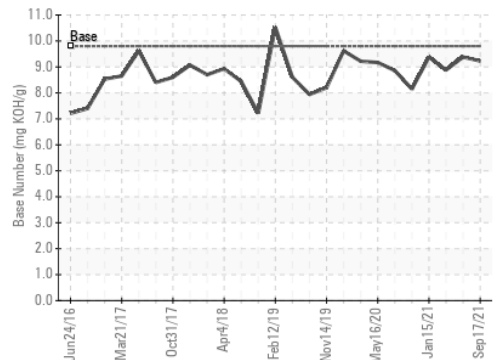
Viscosity @ 100°C



PQ



Base Number



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0490612
Lab Number : 02445841
Unique Number : 5289376
Test Package : MAR 3

CANADIAN COAST GUARD
 CCGS GRIFFON, PO BOX 1000, 401 KING ST.W
 Prescott, ON
 CA K6V 5T3
 Contact: Laurie Bosley
 Laurie.Bosley@dfo-mpo.gc.ca

Received : 23 Sep 2021
Tested : 27 Sep 2021
Diagnosed : 27 Sep 2021 - Kevin Marson

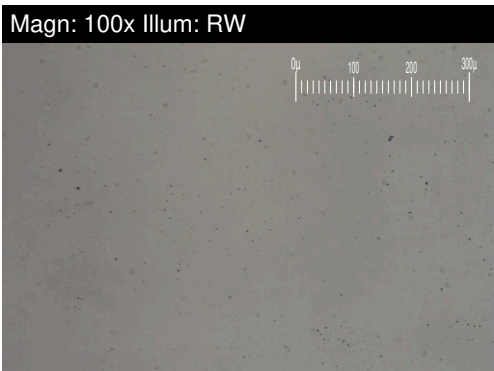
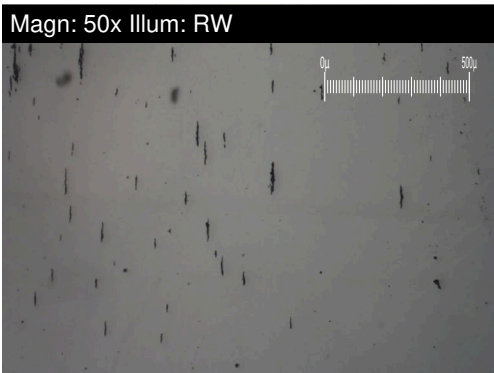
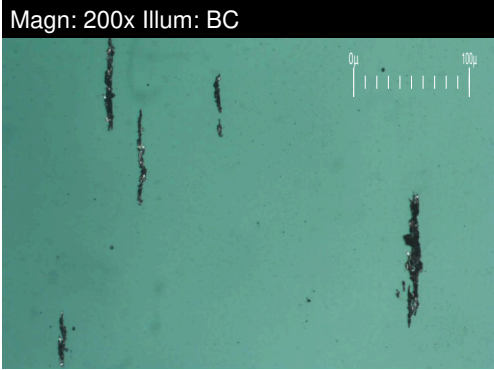
To discuss this sample report, contact Customer Service at 1-800-268-2131.
 Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
 Validity of results and interpretation are based on the sample and information as supplied.

F: (519)383-1994



FERROGRAPHY REPORT

Machine Id
Emergency Generator (S/N 40601268)
 Component
Diesel Engine
 Fluid
PETRO CANADA DURON HP 15W40 (30 LTR)

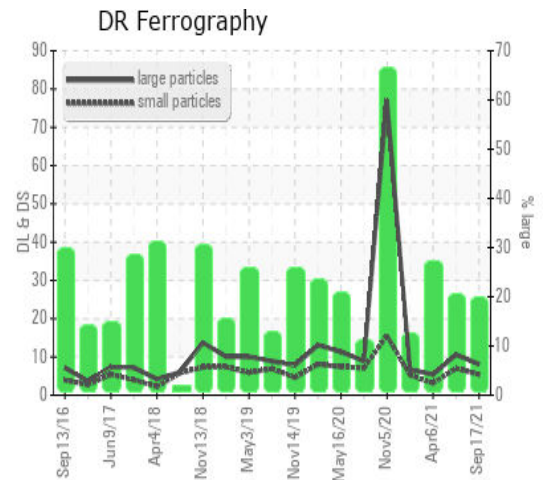


DR-FERROGRAPHY		method	limit/base	current	history1	history2
Large Particles		DR-Ferr*		8.1	10.6	5.4
Small Particles		DR-Ferr*		5.4	7.0	3.1
Total Particles		DR-Ferr*	>---	13.5	17.6	8.5
Large Particles Percentage	%	DR-Ferr*		20	20.5	27.1
Severity Index		DR-Ferr*		21.9	38.2	12.4

FERROGRAPHY		method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10	ASTM D7684*		2	1	2
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*		2	1	1

WEAR

All component wear rates are normal. The direct-reading & analytical ferrographic results are normal indicating no abnormal wear in the system.



This page left intentionally blank