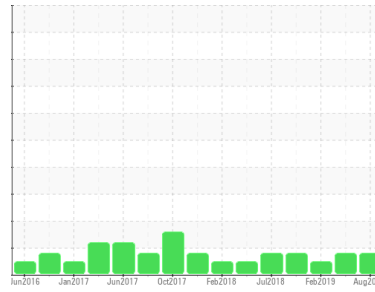




OIL ANALYSIS REPORT

Sample Rating Trend



FUEL



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

DIAGNOSIS

Recommendation

No corrective action is recommended at this time. 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

Light fuel dilution occurring. No other contaminants were detected 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. The condition of the oil is acceptable for the time in service.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0380396	WC62007657	WC63003460
Sample Date	Client Info		13 Aug 2019	03 May 2019	12 Feb 2019
Machine Age	hrs	Client Info	1306	1008	994
Oil Age	hrs	Client Info	226	26	12
Oil Changed	Client Info		Changed	Not Changd	Not Changd
Sample Status			MARGINAL	ABNORMAL	NORMAL

CONTAMINATION

	method	limit/base	current	history1	history2
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*		9	14	10
Iron	ppm	ASTM D5185(m) >80	13	<1	2
Chromium	ppm	ASTM D5185(m) >4	<1	0	0
Nickel	ppm	ASTM D5185(m) >4	<1	<1	0
Titanium	ppm	ASTM D5185(m)	<1	0	0
Silver	ppm	ASTM D5185(m)	0	0	0
Aluminum	ppm	ASTM D5185(m) >10	<1	<1	<1
Lead	ppm	ASTM D5185(m) >15	<1	<1	<1
Copper	ppm	ASTM D5185(m) >230	3	<1	<1
Tin	ppm	ASTM D5185(m) >4	<1	0	0
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	<1	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m) 0	16	<1	1
Barium	ppm	ASTM D5185(m) 0	<1	0	0
Molybdenum	ppm	ASTM D5185(m) 60	52	55	55
Manganese	ppm	ASTM D5185(m) 0	<1	<1	<1
Magnesium	ppm	ASTM D5185(m) 1010	761	885	889
Calcium	ppm	ASTM D5185(m) 1070	1319	931	955
Phosphorus	ppm	ASTM D5185(m) 1150	994	946	969
Zinc	ppm	ASTM D5185(m) 1270	1171	1106	1129
Sulfur	ppm	ASTM D5185(m) 2060	2451	2509	2547
Lithium	ppm	ASTM D5185(m)	<1	0	0

CONTAMINANTS

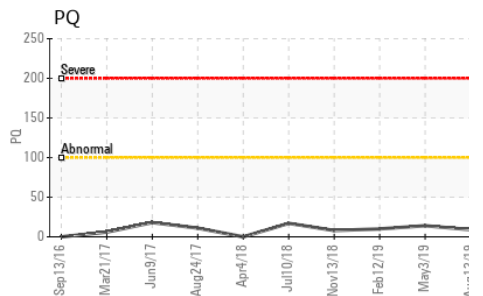
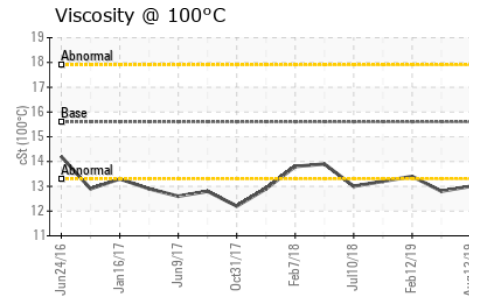
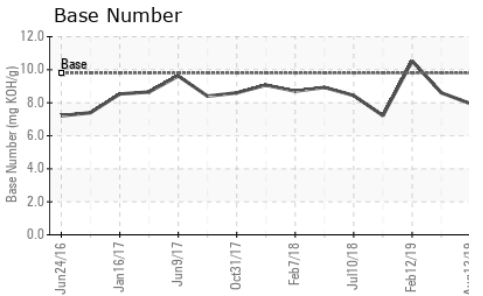
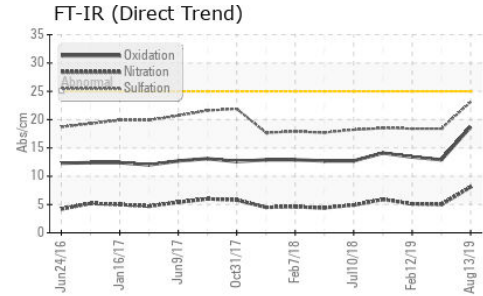
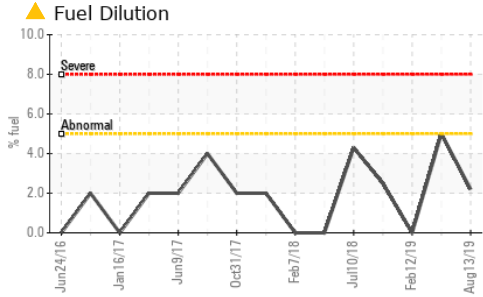
	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m) >25	2	3	3
Sodium	ppm	ASTM D5185(m)	<1	1	<1
Potassium	ppm	ASTM D5185(m) >20	<1	0	0
Fuel	%	ASTM D7593* >5	▲ 2.2	▲ 5	<1.0

INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	ASTM D7844* >3	0	0	0
Nitration	Abs/cm	ASTM D7624* >20	8.1	5.0	5.1
Sulfation	Abs./1mm	ASTM D7415* >30	23.1	18.4	18.4



OIL ANALYSIS REPORT

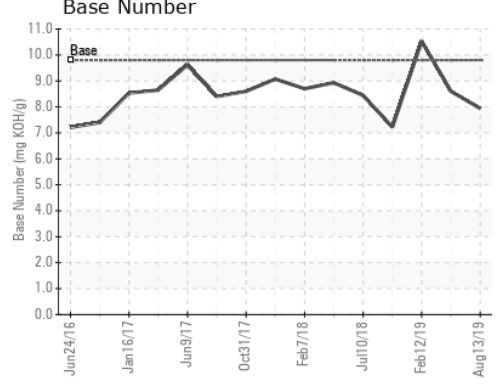
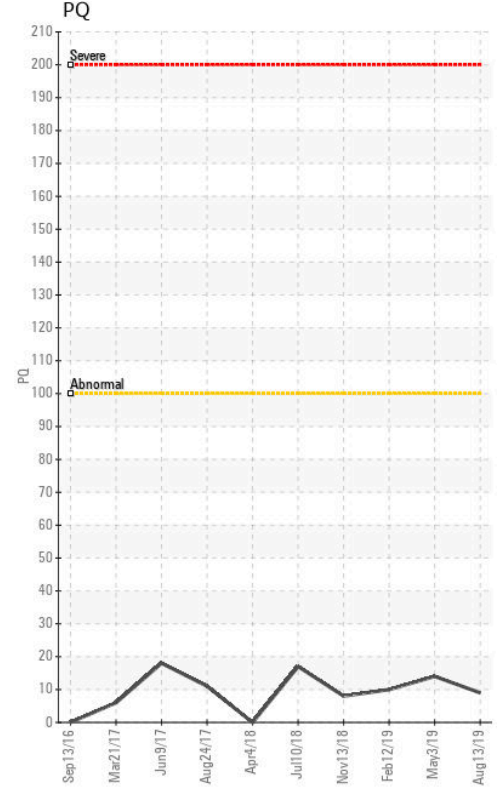
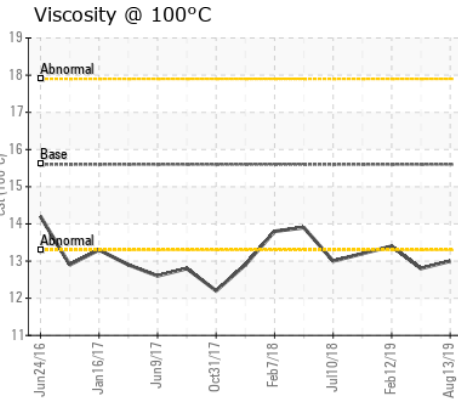
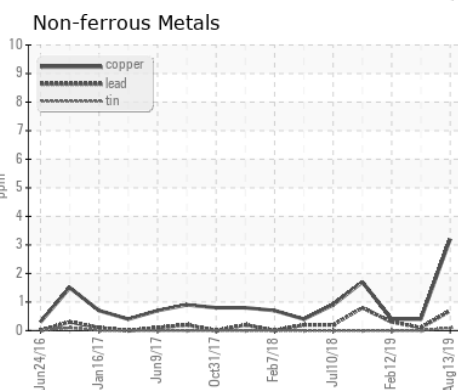
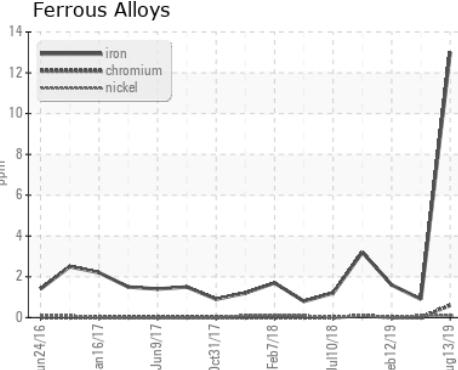


FLUID DEGRADATION	method	limit/base	current	history1	history2	
Oxidation	Abs./1mm	ASTM D7414*	>25	18.7	12.9	13.4
Base Number (BN)	mg KOH/g	ASTM D2896*	9.8	7.94	8.60	10.53

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	13.0	12.8	13.4

GRAPHS



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0380396 **Received** : 27 Aug 2019
Lab Number : 02304938 **Tested** : 29 Aug 2019
Unique Number : 4916214 **Diagnosed** : 29 Aug 2019 - Kevin Marson
Test Package : MAR 3 (Additional Tests: PercentFuel)

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

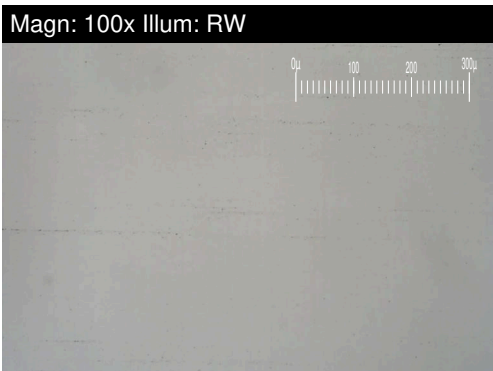
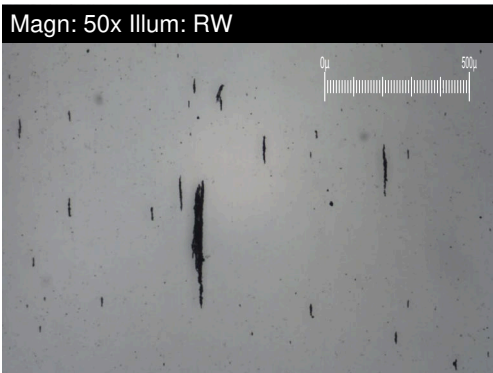
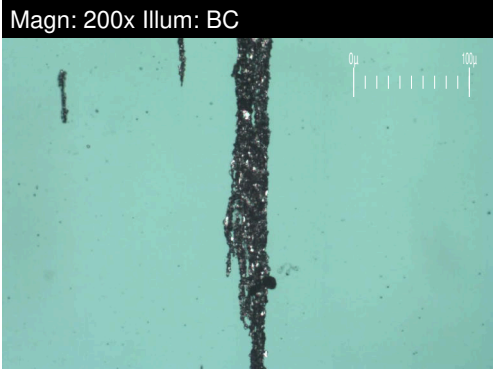
To discuss this sample report, contact Customer Service at 1-800-268-2131.
 Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
 Validity of results and interpretation are based on the sample and information as supplied.

F: (519)383-1994



FERROGRAPHY REPORT

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

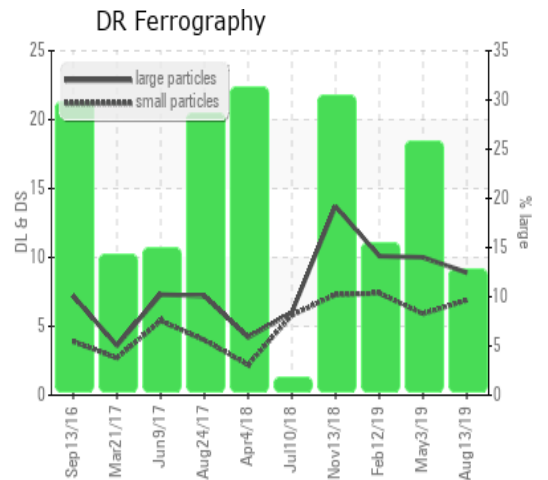


DR-FERROGRAPHY		method	limit/base	current	history1	history2
Large Particles		DR-Ferr*		8.9	10.0	10.1
Small Particles		DR-Ferr*		6.9	5.9	7.4
Total Particles		DR-Ferr*	>---	15.8	15.9	17.5
Large Particles Percentage	%	DR-Ferr*		12.7	25.8	15.4
Severity Index		DR-Ferr*		17.8	41	27.3

FERROGRAPHY		method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10	ASTM D7684*		2	2	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*				
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*				
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 direct-reading & analytical ferrographic results are normal indicating no abnormal wear in the system.



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