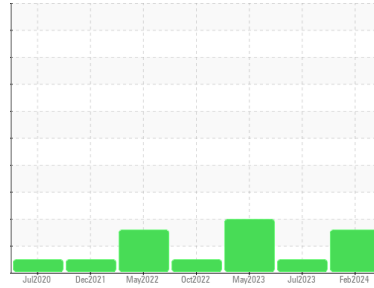




OIL ANALYSIS REPORT

Sample Rating Trend



WEAR



Machine Id
OR348
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (23 LTR)

DIAGNOSIS

Recommendation

The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Wear

Iron ppm levels are abnormal. Cylinder, crank, or cam shaft wear is indicated.

Contamination

Fuel content negligible. Light concentration of carbon/soot present in the oil.

Fluid Condition

The oil is no longer serviceable as a result of the abnormal and/or severe wear.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		GFL0092211	GFL0087394	GFL0056459
Sample Date	Client Info		09 Feb 2024	18 Jul 2023	29 May 2023
Machine Age	hrs	Client Info	22868	22210	21984
Oil Age	hrs	Client Info	22210	226	798
Oil Changed	Client Info		Changed	Changed	Changed
Sample Status			ABNORMAL	NORMAL	ABNORMAL

CONTAMINATION

	method	limit/base	current	history1	history2
Water	WC Method	>0.21	NEG	NEG	NEG
Glycol	WC Method		NEG	NEG	NEG

WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184*	>50	3	---	0
Iron	ppm	ASTM D5185(m)	>51 ▲ 86	28	▲ 109
Chromium	ppm	ASTM D5185(m)	>11 4	<1	2
Nickel	ppm	ASTM D5185(m)	>5 2	<1	2
Titanium	ppm	ASTM D5185(m)	0	0	<1
Silver	ppm	ASTM D5185(m)	>3 0	0	0
Aluminum	ppm	ASTM D5185(m)	>31 6	2	7
Lead	ppm	ASTM D5185(m)	>26 3	<1	4
Copper	ppm	ASTM D5185(m)	>26 2	1	5
Tin	ppm	ASTM D5185(m)	>4 <1	0	0
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 4	2	2
Barium	ppm	ASTM D5185(m)	0 0	0	0
Molybdenum	ppm	ASTM D5185(m)	60 76	62	78
Manganese	ppm	ASTM D5185(m)	0 <1	<1	<1
Magnesium	ppm	ASTM D5185(m)	1010 1132	1022	1196
Calcium	ppm	ASTM D5185(m)	1070 1295	1101	1334
Phosphorus	ppm	ASTM D5185(m)	1150 1158	1096	1299
Zinc	ppm	ASTM D5185(m)	1270 1384	1219	1430
Sulfur	ppm	ASTM D5185(m)	2060 2697	2575	2673
Lithium	ppm	ASTM D5185(m)	<1	<1	<1

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>22 5	4	6
Sodium	ppm	ASTM D5185(m)	>31 2	1	2
Potassium	ppm	ASTM D5185(m)	>20 1	<1	0
Fuel	%	ASTM D7593*	>2.1 0.4	<1.0	<1.0

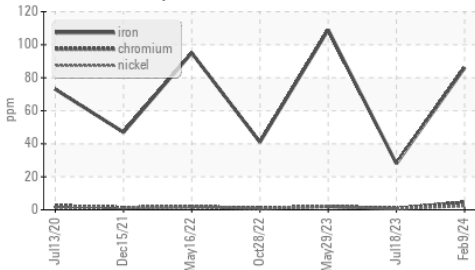
INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*	>3 ▲ 3.8	1.4	▲ 5
Nitration	Abs/cm	ASTM D7624*	>20 13.9	7.8	15.4
Sulfation	Abs.1mm	ASTM D7415*	>30 31.4	22.5	36.1

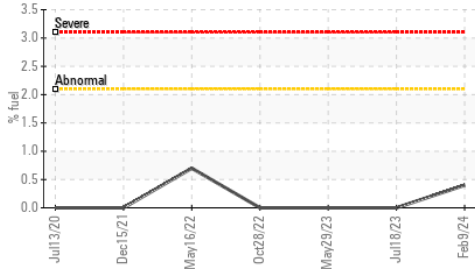


OIL ANALYSIS REPORT

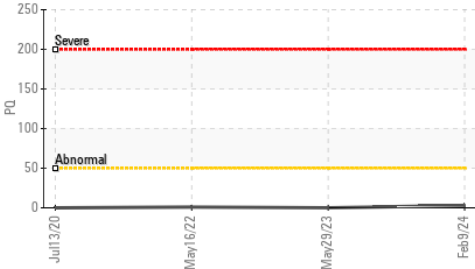
▲ Ferrous Alloys



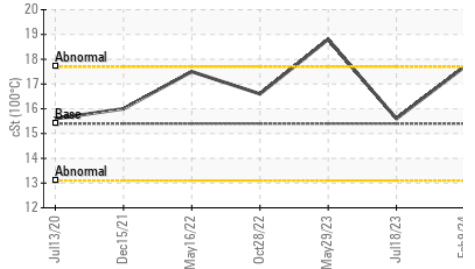
Fuel Dilution



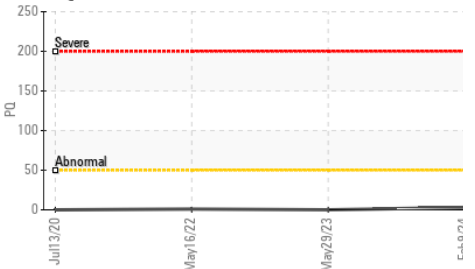
PQ



Viscosity @ 100°C



PQ



FLUID DEGRADATION

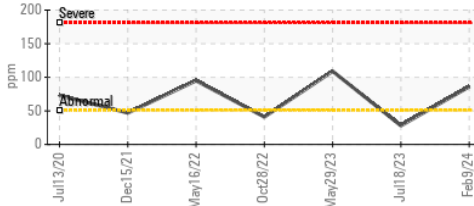
method	limit/base	current	history1	history2	
Oxidation	Abs./1mm ASTM D7414*	>25	22.1	15.4	23.9
VISUAL					
method	limit/base	current	history1	history2	
White Metal	scalar Visual*	NONE	NONE	---	---
Yellow Metal	scalar Visual*	NONE	NONE	---	---
Precipitate	scalar Visual*	NONE	NONE	---	---
Silt	scalar Visual*	NONE	NONE	---	---
Debris	scalar Visual*	NONE	NONE	---	---
Sand/Dirt	scalar Visual*	NONE	NONE	---	---
Appearance	scalar Visual*	NORML	NORML	---	---
Odor	scalar Visual*	NORML	NORML	NORML	NORML
Emulsified Water	scalar Visual*	>0.21	NEG	NEG	NEG
Free Water	scalar Visual*		NEG	NEG	NEG

FLUID PROPERTIES

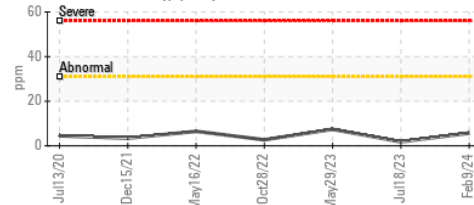
method	limit/base	current	history1	history2	
Visc @ 100°C	cSt ASTM D7279(m)	15.4	17.7	15.6	▲ 18.8

GRAPHS

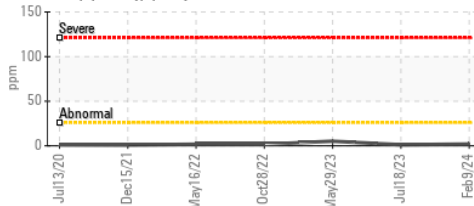
▲ Iron (ppm)



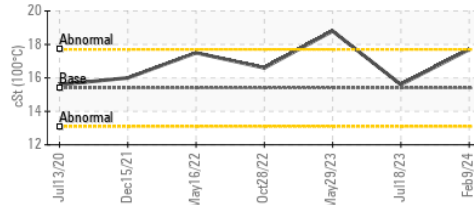
Aluminum (ppm)



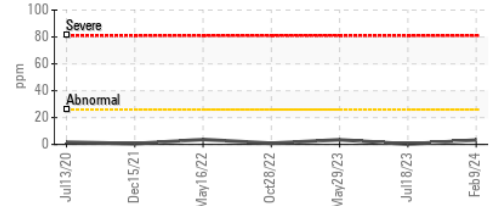
Copper (ppm)



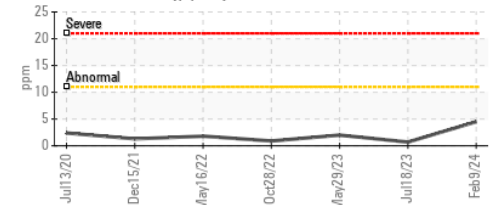
Viscosity @ 100°C



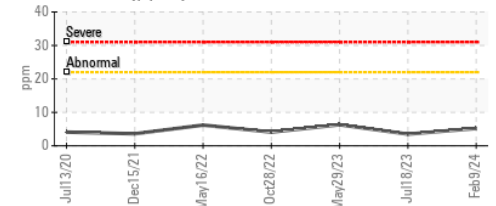
Lead (ppm)



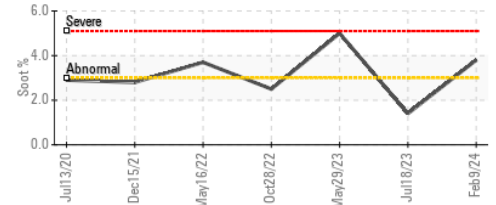
Chromium (ppm)



Silicon (ppm)



▲ Soot %



ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : GFL0092211
Lab Number : 02615236
Unique Number : 5724331
Test Package : MOB 1 (Additional Tests: FuelDilution, PercentFuel, PQ, Visual)

GFL Environmental - 720 - Lafleche - Landfill
 17125 Lafleche Road,
 Moose Creek, ON
 CA K0C 1W0
 Contact: Charles Bergeron
 cbergeron@gflenv.com
 T: (613)538-4853
 F:

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.