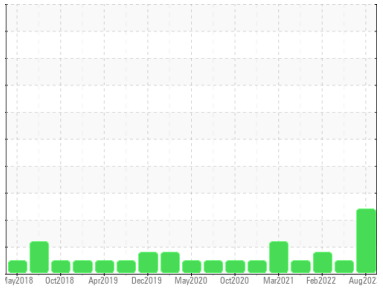
OIL ANALYSIS REPORT

Sample Rating Trend



DEGRADATION

Machine Id
801026
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (22 LTR)

DIAGNOSIS

Recommendation

We advise that you check for faulty combustion and a possible overheat condition. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.

Wear

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

Contamination

There is an abnormal level of sulfation indicated.

Fluid Condition

A small degree of oil oxidation was indicated. 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		**GFL**	GFL0059484	GFL0040021
Sample Date		Client Info		**15 Aug 2023**	16 Sep 2022	01 Feb 2022
Machine Age	hrs	Client Info		**0**	1036	12922
Oil Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**ABNORMAL**	NORMAL	MARGINAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>5	**<1.0**	<1.0	▲ 4.4

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*	>65	**0**	---	---
Iron	ppm	ASTM D5185(m)	>80	▲ **82**	30	72
Chromium	ppm	ASTM D5185(m)	>5	**4**	1	4
Nickel	ppm	ASTM D5185(m)	>2	**<1**	0	<1
Titanium	ppm	ASTM D5185(m)		**<1**	<1	0
Silver	ppm	ASTM D5185(m)	>3	**<1**	0	<1
Aluminum	ppm	ASTM D5185(m)	>30	**20**	10	19
Lead	ppm	ASTM D5185(m)	>30	**<1**	0	<1
Copper	ppm	ASTM D5185(m)	>150	**2**	1	3
Tin	ppm	ASTM D5185(m)	>5	**<1**	0	<1
Antimony	ppm	ASTM D5185(m)		**0**	0	0
Vanadium	ppm	ASTM D5185(m)		**0**	0	<1
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	**5**	4	9
Barium	ppm	ASTM D5185(m)	0	**0**	0	0
Molybdenum	ppm	ASTM D5185(m)	60	**56**	57	61
Manganese	ppm	ASTM D5185(m)	0	**<1**	<1	<1
Magnesium	ppm	ASTM D5185(m)	1010	**892**	897	974
Calcium	ppm	ASTM D5185(m)	1070	**997**	1063	1097
Phosphorus	ppm	ASTM D5185(m)	1150	**978**	972	1002
Zinc	ppm	ASTM D5185(m)	1270	**1105**	1110	1199
Sulfur	ppm	ASTM D5185(m)	2060	**2083**	2357	2369
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>20	**14**	6	11
Sodium	ppm	ASTM D5185(m)		**11**	8	9
Potassium	ppm	ASTM D5185(m)	>20	**25**	14	14
Glycol	%	ASTM D7922*		**0.0**	NEG	0.0

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*	>3	**1.3**	0.4	1.1
Nitration	Abs/cm	ASTM D7624*	>20	**17.7**	11.7	13.6
Sulfation	Abs/.1mm	ASTM D7415*	>30	▲ **31.5**	23.8	26.3

OIL ANALYSIS REPORT

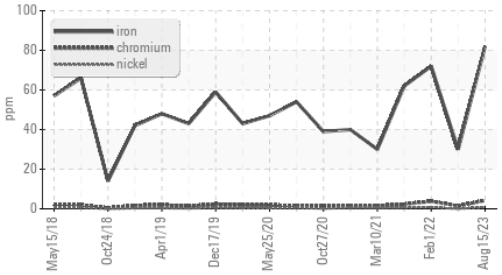
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	▲ **33.1**	21.5	23.4

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

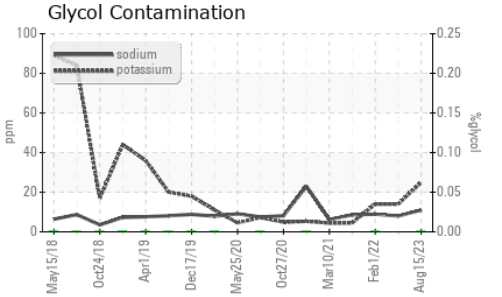
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D7279(m)	15.4	**12.2**	12.3	12.2

GRAPHS

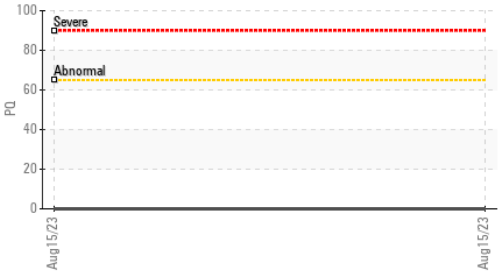
▲ Ferrous Alloys



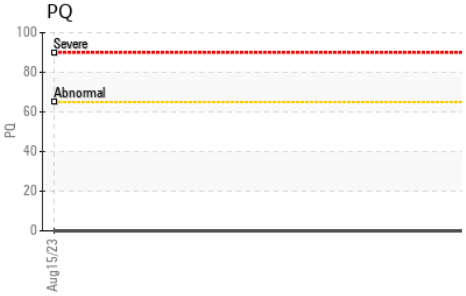
Glycol Contamination



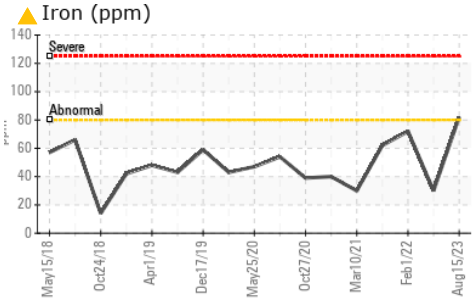
PQ



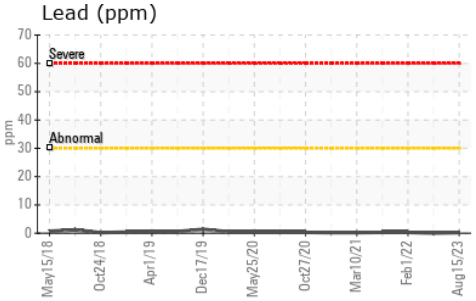
PQ



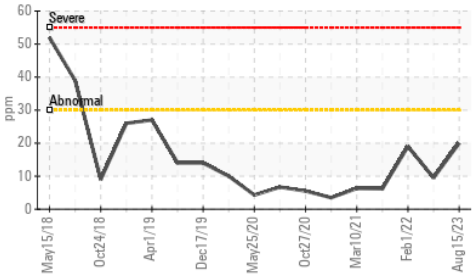
▲ Iron (ppm)



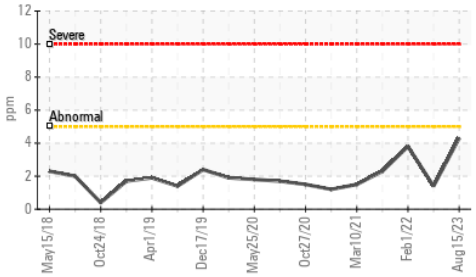
Lead (ppm)



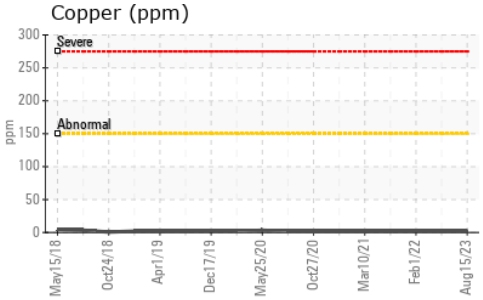
Aluminum (ppm)



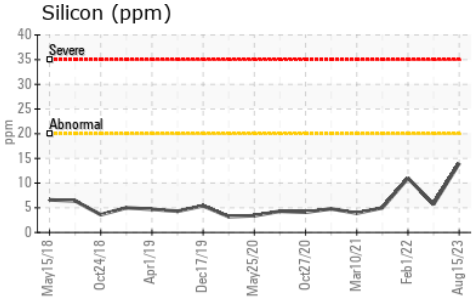
Chromium (ppm)



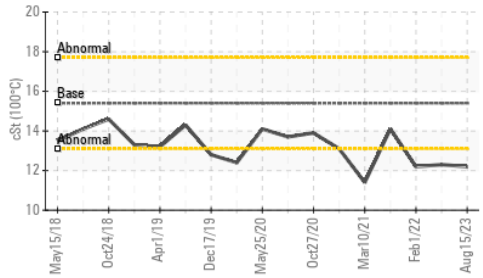
Copper (ppm)



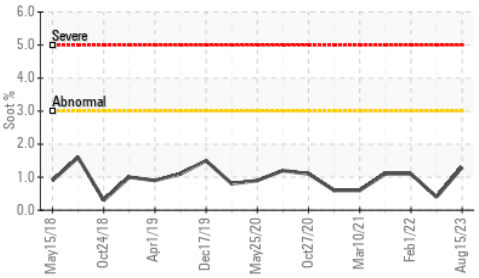
Silicon (ppm)



Viscosity @ 100°C



Soot %



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : GFL
Lab Number : 02576151
Unique Number : 5629211
Test Package : MOB 1 (Additional Tests: Glycol, PQ)

Received : 16 Aug 2023
Diagnosed : 17 Aug 2023
Diagnostician : Kevin Marson

GFL Environmental - 217 - Aurora
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AURORA, ON
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F: (905)713-2445

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.