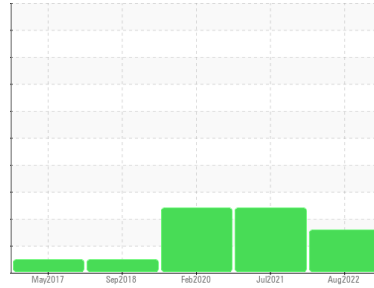




OIL ANALYSIS REPORT

Sample Rating Trend



WEAR



Machine Id
9172
Component
Natural Gas Engine
Fluid
PETRO CANADA DURON GEO LD 15W40 (--- GAL)

DIAGNOSIS

Recommendation

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

Wear

Chromium and iron ppm levels are abnormal. Cylinder, crank, or cam shaft wear is indicated. Ring wear is indicated.

Contamination

There is no indication of any contamination 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	GFL0054857	GFL0008666	PC0025834
Sample Date	Client Info	24 Aug 2022	21 Jul 2021	20 Feb 2020
Machine Age	hrs	229905	0	9426
Oil Age	hrs	0	0	1200
Oil Changed	Client Info	Changed	N/A	Changed
Sample Status		ABNORMAL	ABNORMAL	ABNORMAL

WEAR METALS

method	limit/base	current	history1	history2	
PQ	ASTM D8184*	0	0	0.0	
Iron	ppm	ASTM D5185(m) >45	▲ 50	▲ 58	▲ 65
Chromium	ppm	ASTM D5185(m) >4	▲ 6	▲ 6	▲ 6
Nickel	ppm	ASTM D5185(m) >4	2	1	2
Titanium	ppm	ASTM D5185(m) >5	<1	0	<1
Silver	ppm	ASTM D5185(m)	0	<1	<1
Aluminum	ppm	ASTM D5185(m) >25	14	▲ 24	▲ 29
Lead	ppm	ASTM D5185(m) >45	6	5	11
Copper	ppm	ASTM D5185(m) >175	8	11	30
Tin	ppm	ASTM D5185(m) >4	<1	<1	<1
Antimony	ppm	ASTM D5185(m)	0	0	<1
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) 50	5	6	4
Barium	ppm	ASTM D5185(m) 5	0	0	<1
Molybdenum	ppm	ASTM D5185(m) 50	55	106	140
Manganese	ppm	ASTM D5185(m) 0	1	<1	1
Magnesium	ppm	ASTM D5185(m) 560	578	221	35
Calcium	ppm	ASTM D5185(m) 1510	1700	1927	2082
Phosphorus	ppm	ASTM D5185(m) 780	721	730	624
Zinc	ppm	ASTM D5185(m) 870	920	886	791
Sulfur	ppm	ASTM D5185(m) 2040	2145	2082	2225
Lithium	ppm	ASTM D5185(m)	<1	<1	<1

CONTAMINANTS

method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185(m) >25	8	8	7
Sodium	ppm	ASTM D5185(m)	11	9	9
Potassium	ppm	ASTM D5185(m) >20	1	1	2

INFRA-RED

method	limit/base	current	history1	history2		
Soot %	%	ASTM D7844*	0	0	0	
Nitration	Abs/cm	ASTM D7624*	>20	11.3	9.5	12.0
Sulfation	Abs/.1mm	ASTM D7415*	>30	25.2	24.6	32.5

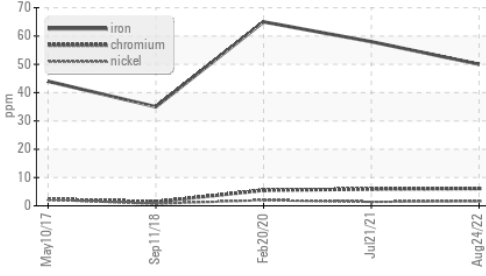
FLUID DEGRADATION

method	limit/base	current	history1	history2		
Oxidation	Abs/.1mm	ASTM D7414*	>25	19.1	15.9	17.5



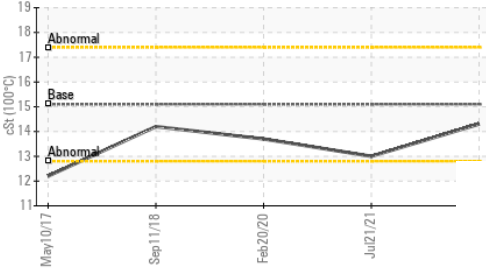
OIL ANALYSIS REPORT

▲ Ferrous Alloys



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	VLITE	---
Debris	scalar	Visual*	NONE	NONE	---
Sand/Dirt	scalar	Visual*	NONE	NONE	---
Appearance	scalar	Visual*	NORML	NORML	---
Odor	scalar	Visual*	NORML	NORML	---
Emulsified Water	scalar	Visual*	>0.1	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG

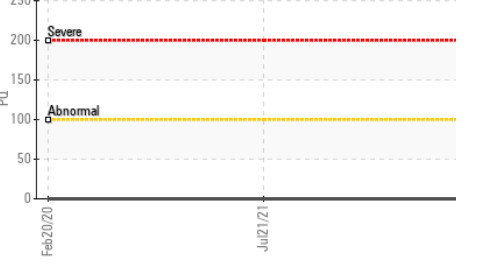
Viscosity @ 100°C



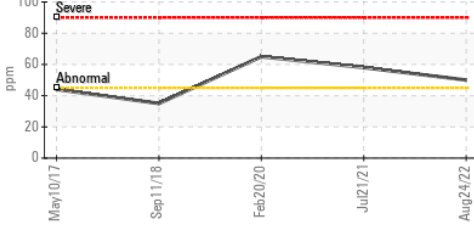
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D7279(m)	15.1	14.3	13.0

GRAPHS

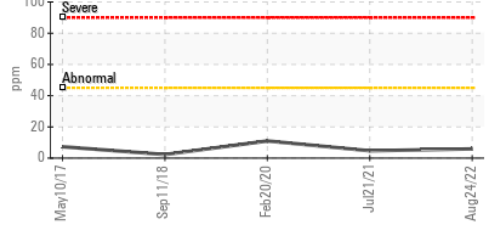
PQ



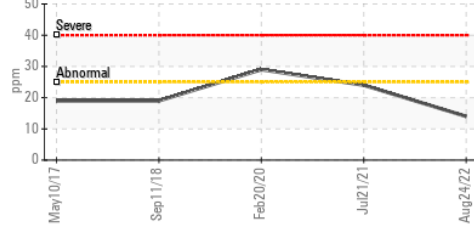
▲ Iron (ppm)



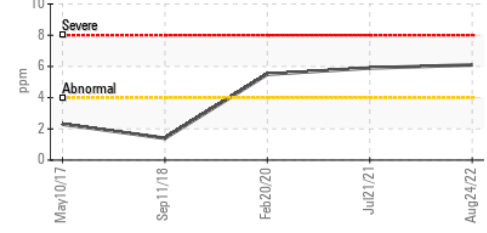
Lead (ppm)



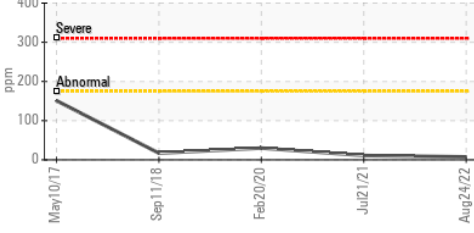
Aluminum (ppm)



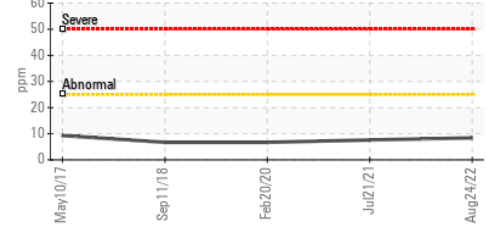
▲ Chromium (ppm)



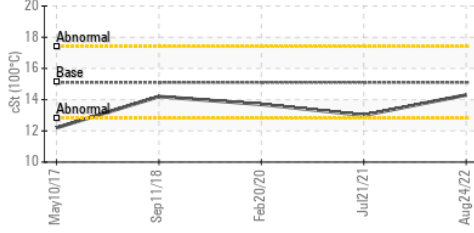
Copper (ppm)



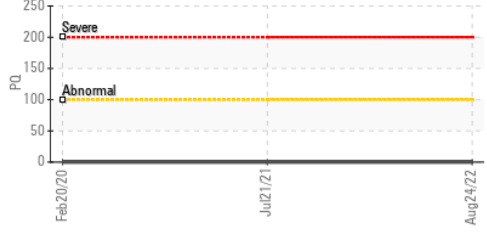
Silicon (ppm)



Viscosity @ 100°C



PQ



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 **GFL Environmental - 209 - Hamilton**
Sample No. : GFL0054857 **Received** : 30 Aug 2022
Lab Number : 02507835 **Diagnosed** : 30 Aug 2022
Unique Number : 5448805 **Diagnostician** : Kevin Marson
Test Package : MOB 1 (Additional Tests: PQ, Visual)

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.

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