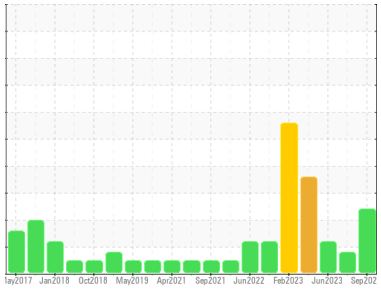
OIL ANALYSIS REPORT

Sample Rating Trend



DEGRADATION

Machine Id
4793
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 10W30 (--- GAL)

DIAGNOSIS

Recommendation
We advise that you check for faulty combustion and a possible overheat condition. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Wear
All component wear rates are normal.

Contamination
There is a moderate amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

Fluid Condition
A small degree of oil oxidation was indicated. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**GFL0093911**	GFL0085924	GFL0078001
Sample Date		Client Info		**14 Sep 2023**	05 Jul 2023	12 Jun 2023
Machine Age	hrs	Client Info		**18867**	18345	18184
Oil Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**Changed**	N/A	Changed
Sample Status				**ABNORMAL**	MARGINAL	ABNORMAL

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>110	**21**	11	22
Chromium	ppm	ASTM D5185(m)	>4	**<1**	<1	1
Nickel	ppm	ASTM D5185(m)	>2	**0**	0	<1
Titanium	ppm	ASTM D5185(m)		**0**	0	0
Silver	ppm	ASTM D5185(m)	>2	**<1**	0	<1
Aluminum	ppm	ASTM D5185(m)	>25	**2**	2	2
Lead	ppm	ASTM D5185(m)	>45	**<1**	<1	<1
Copper	ppm	ASTM D5185(m)	>85	**1**	<1	1
Tin	ppm	ASTM D5185(m)	>4	**0**	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)	2	**1**	1	1
Barium	ppm	ASTM D5185(m)	0	**0**	0	0
Molybdenum	ppm	ASTM D5185(m)	50	**52**	56	55
Manganese	ppm	ASTM D5185(m)	0	**<1**	<1	<1
Magnesium	ppm	ASTM D5185(m)	950	**804**	936	869
Calcium	ppm	ASTM D5185(m)	1050	**869**	968	940
Phosphorus	ppm	ASTM D5185(m)	995	**843**	1028	928
Zinc	ppm	ASTM D5185(m)	1180	**983**	1147	1066
Sulfur	ppm	ASTM D5185(m)	2600	**2093**	2442	2236
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>30	**5**	6	5
Sodium	ppm	ASTM D5185(m)		**90**	25	56
Potassium	ppm	ASTM D5185(m)	>20	**0**	1	2
Fuel	%	ASTM D7593*	>5	▲ **7.9**	▲ 4.2	▲ 7.8
Glycol	%	ASTM D7922*		**0.0**	NEG	NEG

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*	>3	**0.5**	0.2	0.5
Nitration	Abs/cm	ASTM D7624*	>20	**11.6**	8.1	11.0
Sulfation	Abs/.1mm	ASTM D7415*	>30	**26.4**	21.5	25.0

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	▲ **30.6**	19.7	27.1

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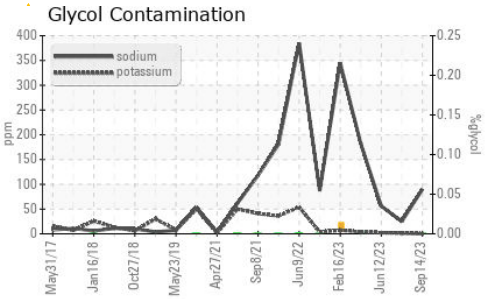
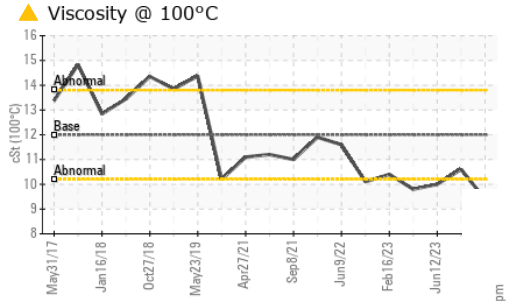
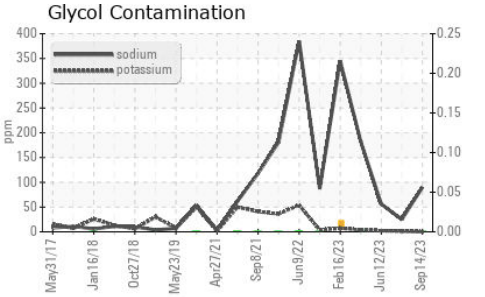
Glycol Contamination



Viscosity @ 100°C



Glycol Contamination

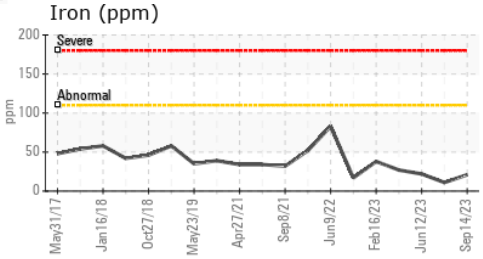


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	**NONE**	---	VLITE
Yellow Metal	scalar	Visual*	NONE	**NONE**	---	NONE
Precipitate	scalar	Visual*	NONE	**NONE**	---	NONE
Silt	scalar	Visual*	NONE	**NONE**	---	VLITE
Debris	scalar	Visual*	NONE	**NONE**	---	NONE
Sand/Dirt	scalar	Visual*	NONE	**NONE**	---	NONE
Appearance	scalar	Visual*	NORML	**NORML**	---	NORML
Odor	scalar	Visual*	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	Visual*	>0.2	**NEG**	NEG	NEG
Free Water	scalar	Visual*		**NEG**	NEG	NEG

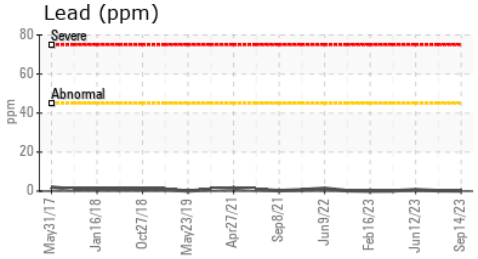
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D7279(m)	12.00	▲ **9.4**	10.6	▲ 10.0

GRAPHS

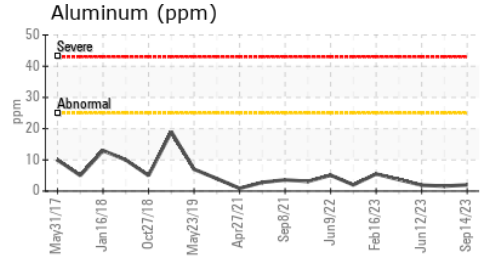
Iron (ppm)



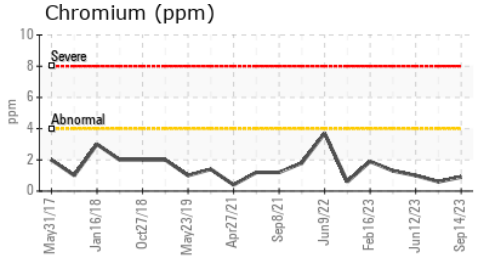
Lead (ppm)



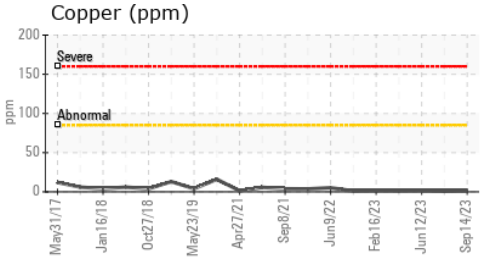
Aluminum (ppm)



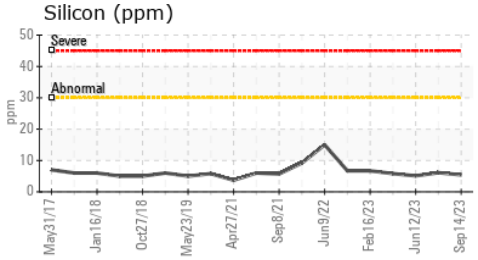
Chromium (ppm)



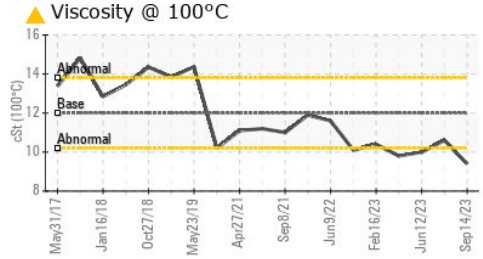
Copper (ppm)



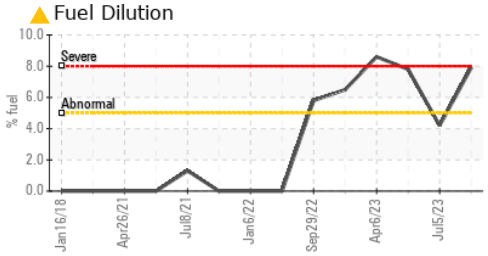
Silicon (ppm)



Viscosity @ 100°C



Fuel Dilution



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 **GFL Environmental - 554 - Edmonton SW**
Sample No. : GFL0093911 **Received** : 22 Sep 2023 8409 -15th Street NW
Lab Number : 02584600 **Diagnosed** : 25 Sep 2023 Edmonton, AB
Unique Number : 5645665 **Diagnostician** : Bill Quesnel CA T6P 0B8
Test Package : MOB 1 (Additional Tests: FuelDilution, Glycol, PercentFuel, Visual) Contact: Tim Greig
To discuss this sample report, contact Customer Service at 1-800-268-2131. tgreig@gflenv.com
Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab. T:
Validity of results and interpretation are based on the sample and information as supplied. F: