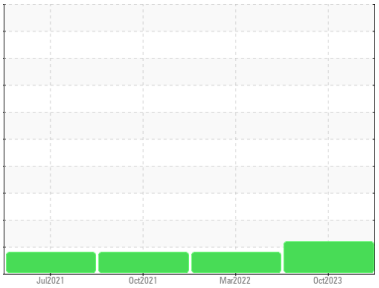
OIL ANALYSIS REPORT

Sample Rating Trend



FUEL

Machine Id
901096
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 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
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
Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**GFL0077018**	GFL0024426	GFL0035418
Sample Date		Client Info		**18 Oct 2023**	27 Mar 2022	01 Oct 2021
Machine Age	hrs	Client Info		**11975**	8342	7171
Oil Age	hrs	Client Info		**1216**	600	600
Oil Changed		Client Info		**Changed**	Changed	Changed
Sample Status				**ABNORMAL**	MARGINAL	MARGINAL

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>110	**84**	38	14
Chromium	ppm	ASTM D5185(m)	>4	**2**	3	<1
Nickel	ppm	ASTM D5185(m)	>2	**<1**	<1	<1
Titanium	ppm	ASTM D5185(m)		**0**	0	0
Silver	ppm	ASTM D5185(m)	>2	**<1**	<1	<1
Aluminum	ppm	ASTM D5185(m)	>25	**11**	10	4
Lead	ppm	ASTM D5185(m)	>45	**<1**	0	0
Copper	ppm	ASTM D5185(m)	>85	**4**	4	2
Tin	ppm	ASTM D5185(m)	>4	**0**	<1	<1
Antimony	ppm	ASTM D5185(m)		**0**	<1	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	**2**	3	3
Barium	ppm	ASTM D5185(m)	0	**0**	0	0
Molybdenum	ppm	ASTM D5185(m)	60	**62**	60	58
Manganese	ppm	ASTM D5185(m)	0	**<1**	<1	<1
Magnesium	ppm	ASTM D5185(m)	1010	**957**	997	959
Calcium	ppm	ASTM D5185(m)	1070	**1084**	1032	1029
Phosphorus	ppm	ASTM D5185(m)	1150	**950**	1086	1038
Zinc	ppm	ASTM D5185(m)	1270	**1200**	1217	1198
Sulfur	ppm	ASTM D5185(m)	2060	**2424**	2610	2513
Lithium	ppm	ASTM D5185(m)		**<1**	0	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>30	**13**	6	4
Sodium	ppm	ASTM D5185(m)		**8**	5	5
Potassium	ppm	ASTM D5185(m)	>20	**5**	9	3
Fuel	%	ASTM D7593*	>5	▲ **5.6**	▲ 2.5	▲ 3.7
Glycol	%	ASTM D7922*		**0.0**	0.0	NEG

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*	>3	**1.5**	0.4	0.3
Nitration	Abs/cm	ASTM D7624*	>20	**12.9**	10.3	9.7
Sulfation	Abs/.1mm	ASTM D7415*	>30	**26.7**	20.6	21.2

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	**23.1**	16.0	17.8

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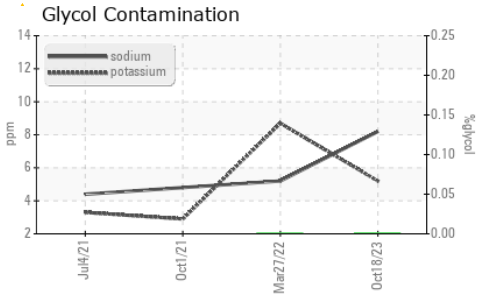
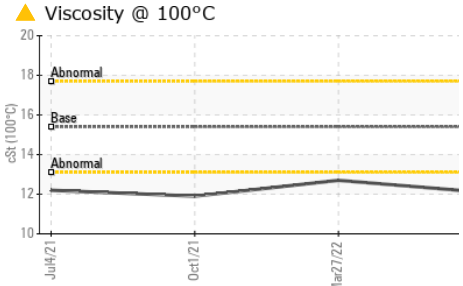
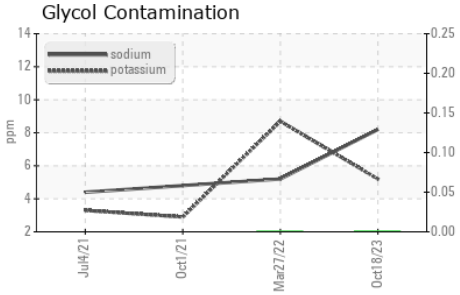
Glycol Contamination



Viscosity @ 100°C



Glycol Contamination

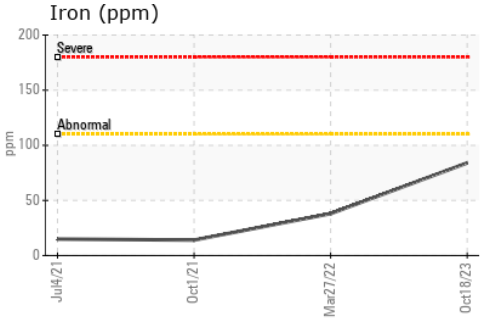


VISUAL		method	limit/base	current	history1	history2
Emulsified Water	scalar	Visual*	>0.2	**NEG**	NEG	NEG
Free Water	scalar	Visual*		**NEG**	NEG	NEG

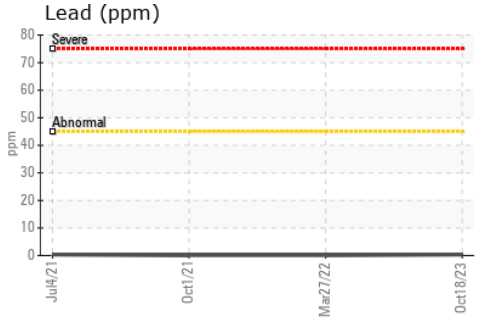
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D7279(m)	15.4	▲ **12.1**	12.7	11.9

GRAPHS

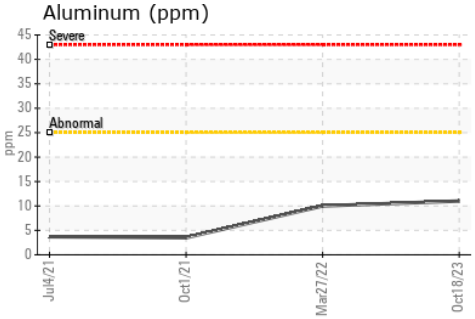
Iron (ppm)



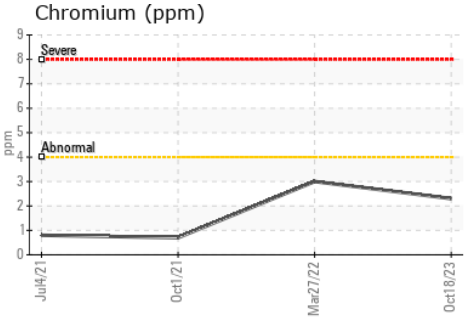
Lead (ppm)



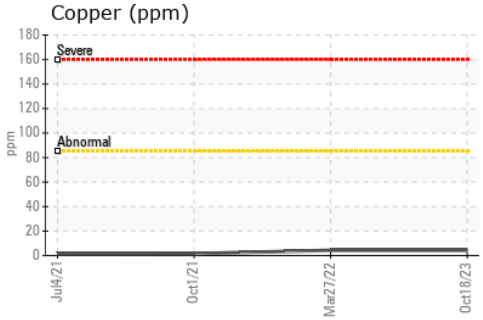
Aluminum (ppm)



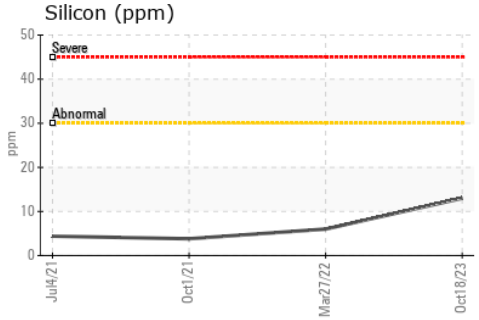
Chromium (ppm)



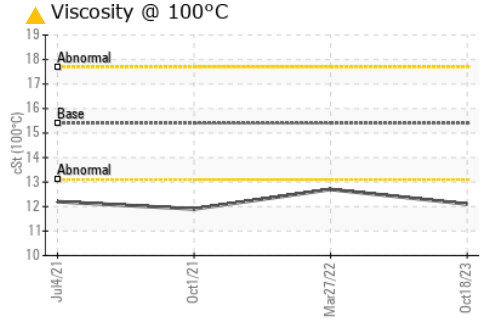
Copper (ppm)



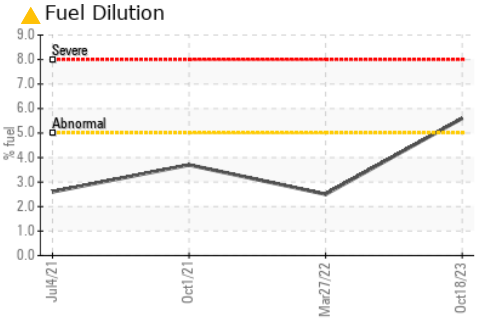
Silicon (ppm)



▲ Viscosity @ 100°C



▲ Fuel Dilution



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 **GFL Environmental - 575 - Squamish Hauling**
Sample No. : GFL0077018 **Received** : 24 Oct 2023 38950 Queens Way,
Lab Number : 02591322 **Diagnosed** : 25 Oct 2023 Squamish, BC
Unique Number : 5668401 **Diagnostician** : Wes Davis CA V8B 0K8
Test Package : MOB 1 (Additional Tests: FuelDilution, Glycol, PercentFuel) Contact: Dean Imbeau

To discuss this sample report, contact Customer Service at 1-800-268-2131. dimbeau@gflenv.com
Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab. T: (604)892-5604
Validity of results and interpretation are based on the sample and information as supplied. F: (604)892-5238