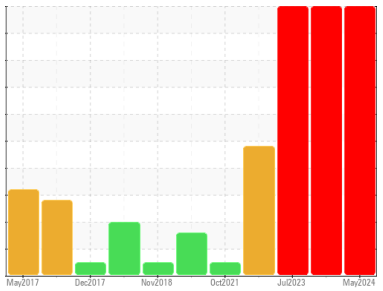
OIL ANALYSIS REPORT

Sample Rating Trend



GLYCOL

Machine Id
4582
Component
Diesel Engine
Fluid
PETRO CANADA DURON HP 15W40 (--- GAL)

DIAGNOSIS

Recommendation
We advise that you check the fuel injection system. We advise that you check for the source of the coolant leak. We recommend that you drain the oil from the component if this has not already been done. We advise that you flush the component thoroughly before re-filling with oil. We recommend you service the filters on this component. We recommend an early resample to monitor this condition.

Wear
Aluminum and iron ppm levels are severe. Cylinder, crank, or cam shaft wear is indicated. Piston wear is indicated.

Contamination
Test for glycol is positive. There is a high amount of fuel present in the oil. There is a high concentration of glycol present in the oil. There is a moderate concentration of water present in the oil. Excessive free water present. Tests confirm the presence of fuel 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		**GFL0117347**	GFL0112389	GFL0084286
Sample Date		Client Info		**16 May 2024**	28 Feb 2024	12 Jul 2023
Machine Age	kms	Client Info		**0**	0	28044
Oil Age	kms	Client Info		**0**	10829	600
Oil Changed		Client Info		**Not Changd**	Changed	Changed
Sample Status				**SEVERE**	SEVERE	SEVERE

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>0.2	**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*	>30	**0**	0	0
Iron	ppm	ASTM D5185(m)	>110	▲ **381**	▲ 136	▲ 226
Chromium	ppm	ASTM D5185(m)	>4	**3**	<1	2
Nickel	ppm	ASTM D5185(m)	>2	**1**	▲ 3	▲ 12
Titanium	ppm	ASTM D5185(m)		**1**	0	<1
Silver	ppm	ASTM D5185(m)	>2	**<1**	0	<1
Aluminum	ppm	ASTM D5185(m)	>25	▲ **110**	▲ 36	▲ 83
Lead	ppm	ASTM D5185(m)	>45	**15**	4	16
Copper	ppm	ASTM D5185(m)	>85	**58**	36	▲ 128
Tin	ppm	ASTM D5185(m)	>4	**2**	<1	<1
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	**14**	8	36
Barium	ppm	ASTM D5185(m)	0	**<1**	0	0
Molybdenum	ppm	ASTM D5185(m)	60	**455**	58	67
Manganese	ppm	ASTM D5185(m)	0	**2**	2	6
Magnesium	ppm	ASTM D5185(m)	1010	**408**	905	929
Calcium	ppm	ASTM D5185(m)	1070	**412**	1009	956
Phosphorus	ppm	ASTM D5185(m)	1150	**502**	978	1035
Zinc	ppm	ASTM D5185(m)	1270	**569**	1120	1171
Sulfur	ppm	ASTM D5185(m)	2060	**1317**	2605	2483
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>30	▲ **45**	14	14
Sodium	ppm	ASTM D5185(m)		● **5327**	● 223	● 895
Potassium	ppm	ASTM D5185(m)	>20	▲ **164**	▲ 134	▲ 578
Fuel	%	ASTM D7593*	>5	▲ **13.8**	<1.0	0.8
Glycol	%	ASTM D7922*		▲ **>.70**	▲ 0.179	▲ 0.05

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*	>3	**1.1**	0.2	0.3
Nitration	Abs/cm	ASTM D7624*	>20	**77.9**	8.1	15.9
Sulfation	Abs/.1mm	ASTM D7415*	>30	**0.0**	18.9	19.7

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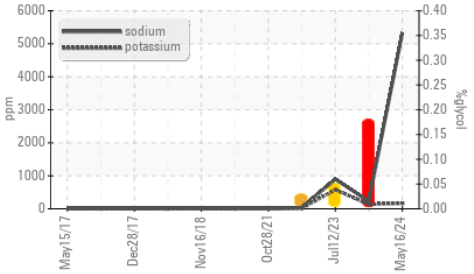
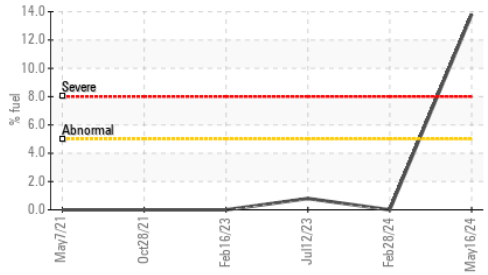
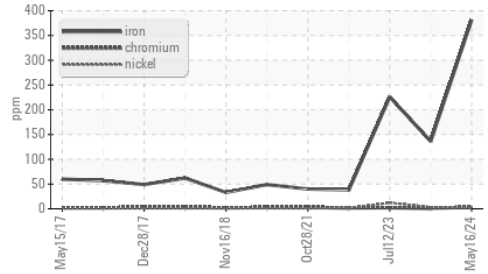
Glycol Contamination



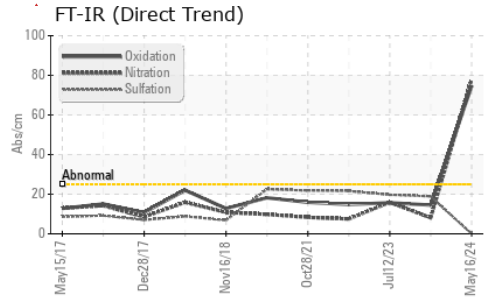
Fuel Dilution



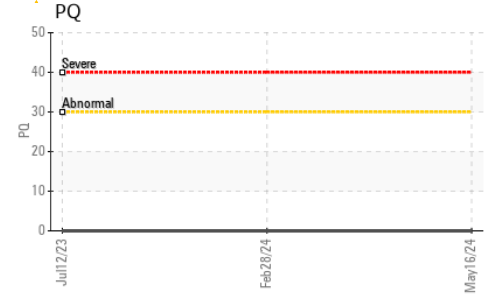
Ferrous Alloys



FT-IR (Direct Trend)



PQ



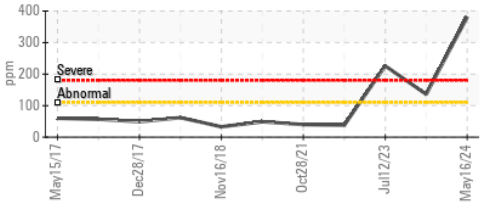
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	**74.6**	14.5	15.7
Base Number (BN)	mg KOH/g	ASTM D2896*	9.8	**39.42**	11.94	12.65

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	**LIGHT**	---	---
Debris	scalar	Visual*	NONE	**NONE**	---	---
Sand/Dirt	scalar	Visual*	NONE	**NONE**	---	---
Appearance	scalar	Visual*	NORML	▲ **WGOIL**	---	---
Odor	scalar	Visual*	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	Visual*	>0.2	▲ **1%**	NEG	NEG
Free Water	scalar	Visual*		▲ **>10%**	NEG	NEG

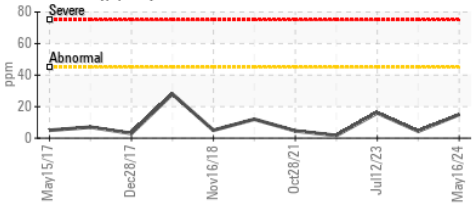
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D7279(m)	15.6	**102**	13.7	▲ 11.6

GRAPHS

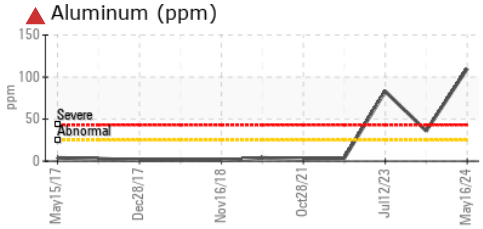
Iron (ppm)



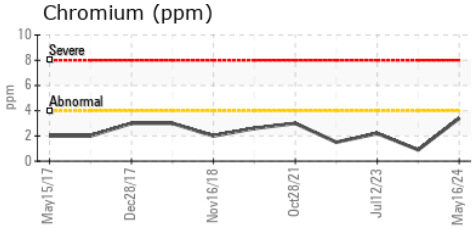
Lead (ppm)



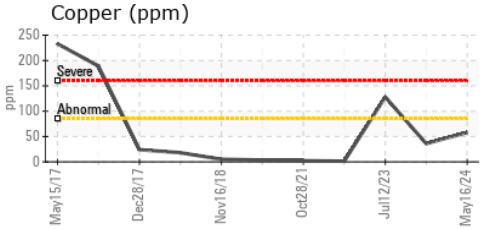
Aluminum (ppm)



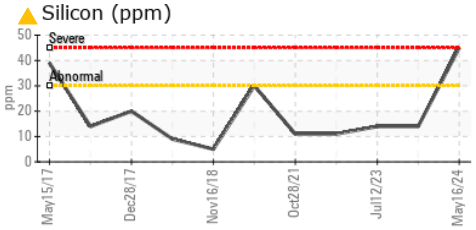
Chromium (ppm)



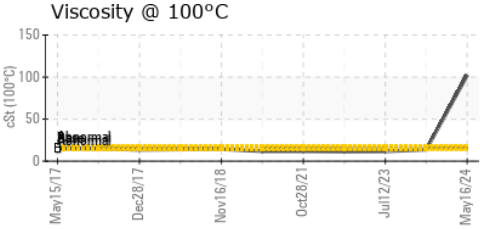
Copper (ppm)



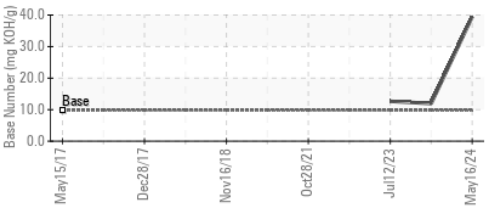
Silicon (ppm)



Viscosity @ 100°C



Base Number



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : GFL0117347
Lab Number : 02637859
Unique Number : 5787021
Test Package : MOB 2 (Additional Tests: FuelDilution, PercentFuel, PQ, Visual)

Received : 28 May 2024
Tested : 29 May 2024
Diagnosed : 30 May 2024 - Kevin Marson

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.

GFL Environmental - 550 - Rocky View County
220 Carmek Blvd
Rocky View County, AB
CA T1X 1X1
Contact: GFL Calgary
calgarymaintenance@gflenv.com
T:
F: (403)369-6163

Report Id: GFL550 [WCAMIS] 02637859 (Generated: 05/30/2024 09:23:08) Rev: 1

Submitted By: Brian Gagne