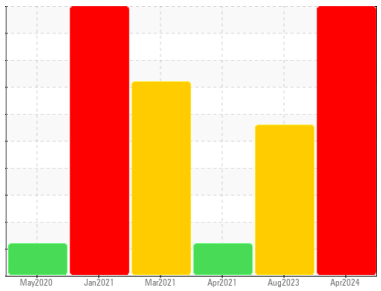
OIL ANALYSIS REPORT

Sample Rating Trend



WEAR

Machine Id
OR343
Component
Diesel Engine
Fluid
PETRO CANADA DURON HP 15W40 (--- GAL)

DIAGNOSIS

Recommendation
We advise that you check for the source of the coolant leak. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Wear
Nickel ppm levels are severe. Copper and iron ppm levels are abnormal. Cylinder, crank, or cam shaft wear is indicated. Exhaust valve wear is indicated. Bearing wear is indicated.

Contamination
Test for glycol is positive. There is a moderate concentration of glycol present in the oil. Tests indicate that there is no fuel present 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		**GFL0113343**	GFL0092257	GFL0010898
Sample Date		Client Info		**15 Apr 2024**	21 Aug 2023	28 Apr 2021
Machine Age	hrs	Client Info		**16058**	15462	0
Oil Age	hrs	Client Info		**596**	500	0
Oil Changed		Client Info		**Changed**	Changed	N/A
Sample Status				**SEVERE**	ABNORMAL	ABNORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>0.21	**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*	>50	**0**	---	---
Iron	ppm	ASTM D5185(m)	>37	▲ **48**	24	25
Chromium	ppm	ASTM D5185(m)	>11	**4**	2	2
Nickel	ppm	ASTM D5185(m)	>5	▲ **11**	3	4
Titanium	ppm	ASTM D5185(m)		**<1**	<1	0
Silver	ppm	ASTM D5185(m)	>3	**0**	<1	<1
Aluminum	ppm	ASTM D5185(m)	>31	**25**	9	11
Lead	ppm	ASTM D5185(m)	>26	**3**	5	12
Copper	ppm	ASTM D5185(m)	>26	▲ **32**	▲ 83	66
Tin	ppm	ASTM D5185(m)	>4	**<1**	<1	1
Antimony	ppm	ASTM D5185(m)		**0**	0	<1
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	**5**	5	4
Barium	ppm	ASTM D5185(m)	0	**0**	0	0
Molybdenum	ppm	ASTM D5185(m)	60	**64**	60	85
Manganese	ppm	ASTM D5185(m)	0	**1**	<1	<1
Magnesium	ppm	ASTM D5185(m)	1010	**945**	928	912
Calcium	ppm	ASTM D5185(m)	1070	**1086**	971	1111
Phosphorus	ppm	ASTM D5185(m)	1150	**921**	990	949
Zinc	ppm	ASTM D5185(m)	1270	**1159**	1084	1180
Sulfur	ppm	ASTM D5185(m)	2060	**2034**	2393	2460
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>22	**9**	10	15
Sodium	ppm	ASTM D5185(m)	>31	● **101**	● 87	28
Potassium	ppm	ASTM D5185(m)	>20	▲ **20**	▲ 34	13
Fuel	%	ASTM D7593*	>8.0	**0.0**	1.5	▲ 2.1
Glycol	%	ASTM D7922*		▲ **0.064**	▲ 0.016	0.0

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*	>3	**0.1**	0	0.3
Nitration	Abs/cm	ASTM D7624*	>20	**8.1**	6.8	7.8
Sulfation	Abs/.1mm	ASTM D7415*	>30	**20.3**	20.2	20.7

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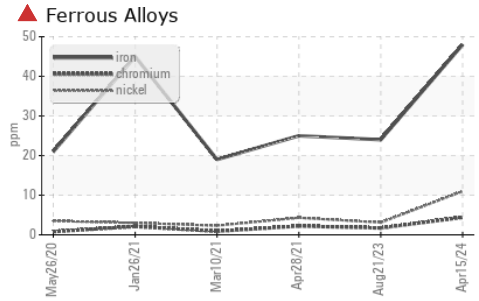
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	**15.6**	13.6	15.5

VISUAL		method	limit/base	current	history1	history2
Emulsified Water	scalar	Visual*	>0.21	**NEG**	NEG	NEG
Free Water	scalar	Visual*		**NEG**	NEG	NEG

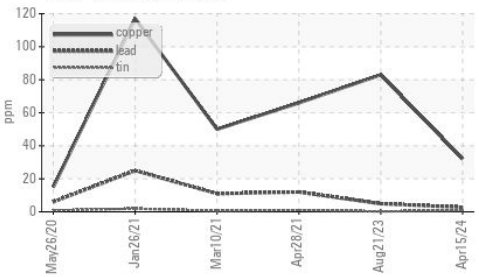
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D7279(m)	15.6	**12.6**	13.3	▲ 12.5

GRAPHS

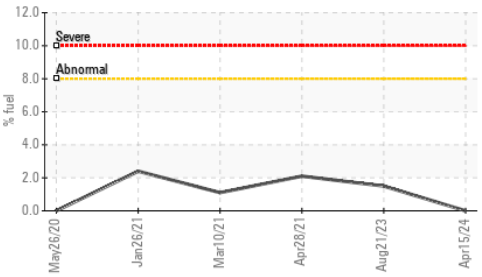
▲ Ferrous Alloys



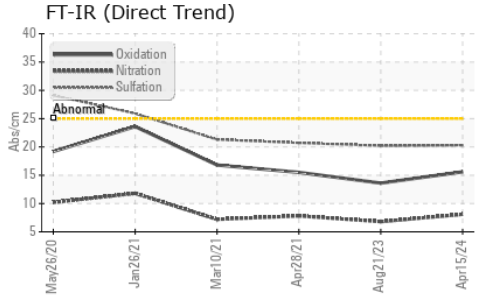
▲ Non-ferrous Metals



Fuel Dilution

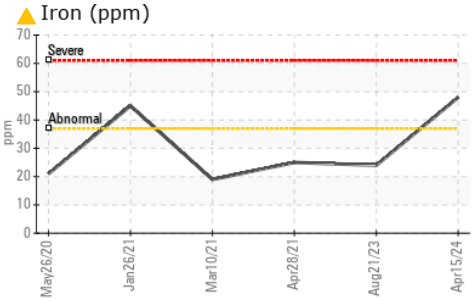


FT-IR (Direct Trend)

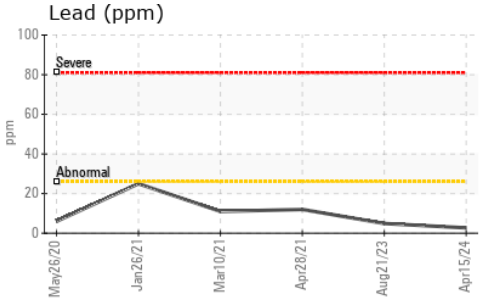


PQ

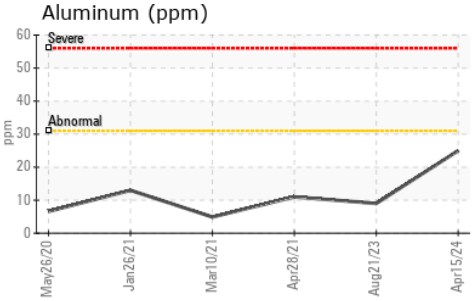
▲ Iron (ppm)



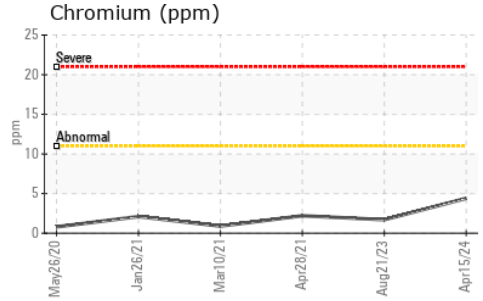
Lead (ppm)



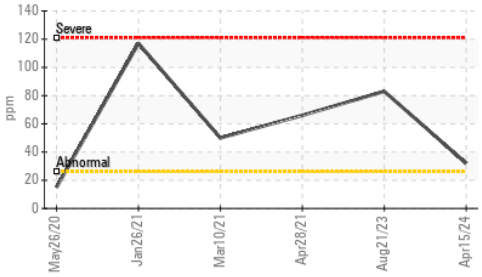
Aluminum (ppm)



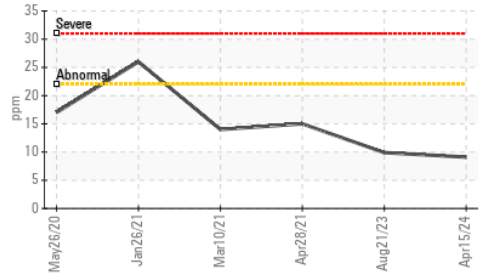
Chromium (ppm)



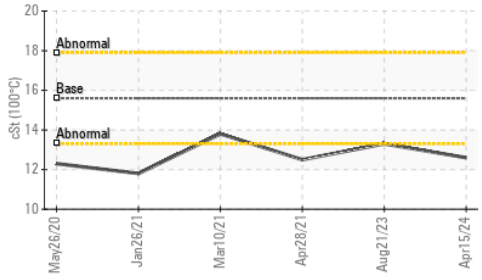
▲ Copper (ppm)



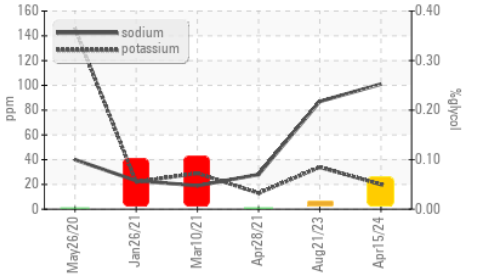
Silicon (ppm)



Viscosity @ 100°C



▲ Glycol Contamination



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : GFL0113343
Lab Number : 02630895
Unique Number : 5772048
Test Package : MOB 1 (Additional Tests: FuelDilution, Glycol, PercentFuel, PQ)

Received : 23 Apr 2024
Tested : 24 Apr 2024
Diagnosed : 24 Apr 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.

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