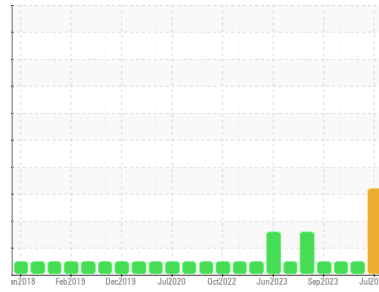




OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id
801052
 Component
Diesel Engine
 Fluid
PETRO CANADA DURON SHP 15W40 (22 LTR)

DIAGNOSIS

Recommendation

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. We recommend that you drain the oil from the component if this has not already been done. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Wear

Iron and nickel ppm levels are abnormal. Aluminum ppm levels are noted. Cylinder, crank, or cam shaft wear is indicated. Exhaust valve wear is indicated.

Contamination

Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. High amount of ingressed dirt has caused abrasive wear to the component.

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	GFL0122287	GFL0111755	WC0875088
Sample Date	Client Info	17 Jul 2024	05 Feb 2024	21 Nov 2023
Machine Age	hrs	0	14576	17687
Oil Age	hrs	600	0	0
Oil Changed	Client Info	Changed	Changed	Changed
Sample Status		ABNORMAL	NORMAL	NORMAL

CONTAMINATION

method	limit/base	current	history1	history2
Fuel	WC Method >5	<1.0	<1.0	<1.0
Water	WC Method >0.2	NEG	NEG	NEG

WEAR METALS

method	limit/base	current	history1	history2		
PQ	ASTM D8184*	>65	0	---	---	
Iron	ppm	ASTM D5185(m)	>80	▲ 90	24	34
Chromium	ppm	ASTM D5185(m)	>5	4	<1	2
Nickel	ppm	ASTM D5185(m)	>2	▲ 3	<1	<1
Titanium	ppm	ASTM D5185(m)		<1	0	0
Silver	ppm	ASTM D5185(m)	>3	0	0	<1
Aluminum	ppm	ASTM D5185(m)	>30	14	3	4
Lead	ppm	ASTM D5185(m)	>30	0	0	0
Copper	ppm	ASTM D5185(m)	>150	2	<1	1
Tin	ppm	ASTM D5185(m)	>5	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)	0	4	11	2
Barium	ppm	ASTM D5185(m)	0	<1	0	0
Molybdenum	ppm	ASTM D5185(m)	60	60	60	60
Manganese	ppm	ASTM D5185(m)	0	1	0	0
Magnesium	ppm	ASTM D5185(m)	1010	939	929	967
Calcium	ppm	ASTM D5185(m)	1070	1036	1073	1089
Phosphorus	ppm	ASTM D5185(m)	1150	1020	1013	996
Zinc	ppm	ASTM D5185(m)	1270	1164	1189	1225
Sulfur	ppm	ASTM D5185(m)	2060	2474	2579	2403
Lithium	ppm	ASTM D5185(m)		<1	<1	<1

CONTAMINANTS

method	limit/base	current	history1	history2		
Silicon	ppm	ASTM D5185(m)	>20	▲ 36	10	12
Sodium	ppm	ASTM D5185(m)		10	7	9
Potassium	ppm	ASTM D5185(m)	>20	9	1	2
Glycol	%	ASTM D7922*		0.0	NEG	NEG

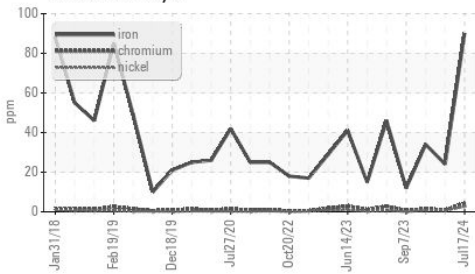
INFRA-RED

method	limit/base	current	history1	history2		
Soot %	%	ASTM D7844*	>3	0.5	0.4	0.4
Nitration	Abs/cm	ASTM D7624*	>20	9.5	9.6	9.9
Sulfation	Abs.1mm	ASTM D7415*	>30	20.0	20.9	21.2

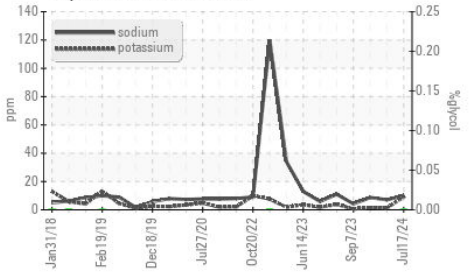


OIL ANALYSIS REPORT

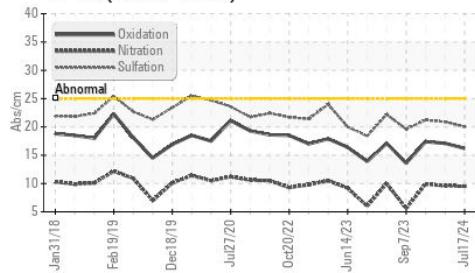
▲ Ferrous Alloys



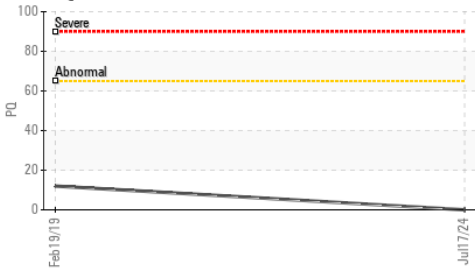
● Glycol Contamination



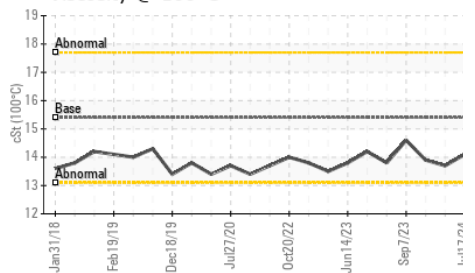
FT-IR (Direct Trend)



PQ



Viscosity @ 100°C



FLUID DEGRADATION

method	limit/base	current	history1	history2	
Oxidation	Abs./1mm ASTM D7414*	>25	16.2	17.1	17.4

VISUAL

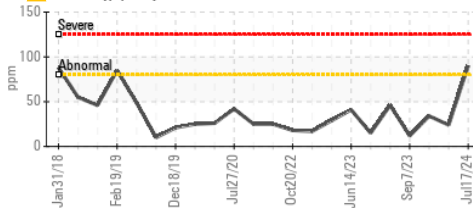
method	limit/base	current	history1	history2
White Metal	scalar Visual*	NONE	VLITE	---
Yellow Metal	scalar Visual*	NONE	NONE	---
Precipitate	scalar Visual*	NONE	NONE	---
Silt	scalar Visual*	NONE	NONE	---
Debris	scalar Visual*	NONE	NONE	---
Sand/Dirt	scalar Visual*	NONE	NONE	---
Appearance	scalar Visual*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

FLUID PROPERTIES

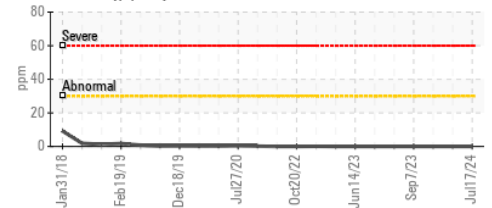
method	limit/base	current	history1	history2	
Visc @ 100°C	cSt ASTM D7279(m)	15.4	14.1	13.7	13.9

GRAPHS

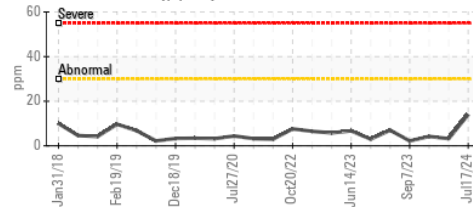
▲ Iron (ppm)



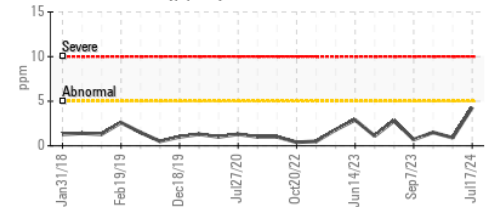
Lead (ppm)



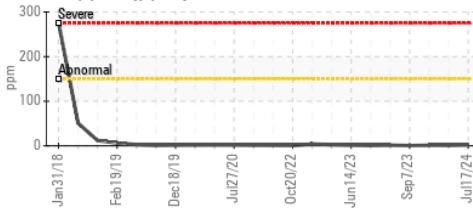
Aluminum (ppm)



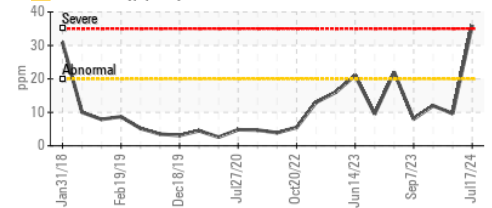
Chromium (ppm)



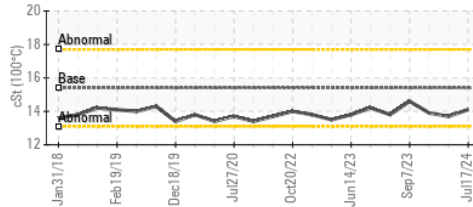
Copper (ppm)



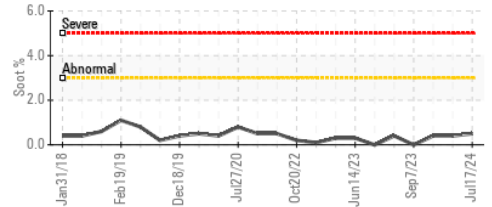
▲ Silicon (ppm)



Viscosity @ 100°C



Soot %



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : GFL0122287
Lab Number : 02648635
Unique Number : 5814187
Test Package : MOB 1 (Additional Tests: Glycol, PQ, Visual)
Received : 18 Jul 2024
Tested : 18 Jul 2024
Diagnosed : 19 Jul 2024 - Kevin Marson

GFL Environmental - 217 - Aurora
 14131 BAYVIEW AVE, AURORA YARD
 AURORA, ON
 CA L4G 0K6
 Contact: Mike Havens
 MHavens@gflenv.com

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.

T:
 F: (905)713-2445