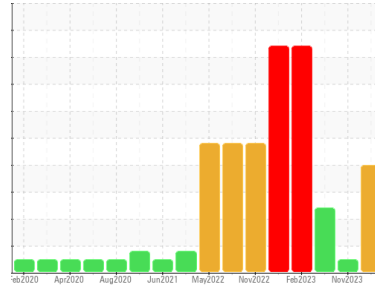




OIL ANALYSIS REPORT

Sample Rating Trend



Area
(YA152761)
Machine Id
12067
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (32 QTS)

DIAGNOSIS

Recommendation

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Wear

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.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	GFL0109743	GFL0092727	GFL0071535
Sample Date	Client Info	08 Feb 2024	03 Nov 2023	26 Apr 2023
Machine Age	hrs	15602	8116	8116
Oil Age	hrs	497	246	600
Oil Changed	Client Info	Changed	Not Changd	Changed
Sample Status		ABNORMAL	NORMAL	ABNORMAL

CONTAMINATION

method	limit/base	current	history1	history2
Fuel	WC Method >3.0	<1.0	<1.0	<1.0
Water	WC Method >0.2	NEG	NEG	NEG
Glycol	WC Method	NEG	NEG	NEG

WEAR METALS

method	limit/base	current	history1	history2
Iron	ppm ASTM D5185m >90	▲ 129	25	15
Chromium	ppm ASTM D5185m >20	4	1	<1
Nickel	ppm ASTM D5185m >2	▲ 4	<1	0
Titanium	ppm ASTM D5185m >2	1	<1	0
Silver	ppm ASTM D5185m >2	0	0	0
Aluminum	ppm ASTM D5185m >20	▲ 24	7	3
Lead	ppm ASTM D5185m >40	0	0	0
Copper	ppm ASTM D5185m >330	60	8	1
Tin	ppm ASTM D5185m >15	2	3	0
Vanadium	ppm ASTM D5185m	<1	<1	0
Cadmium	ppm ASTM D5185m	0	0	0

ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185m 0	25	41	4
Barium	ppm ASTM D5185m 0	0	0	0
Molybdenum	ppm ASTM D5185m 60	42	50	69
Manganese	ppm ASTM D5185m 0	2	<1	<1
Magnesium	ppm ASTM D5185m 1010	470	730	1028
Calcium	ppm ASTM D5185m 1070	1403	1586	1171
Phosphorus	ppm ASTM D5185m 1150	704	921	1081
Zinc	ppm ASTM D5185m 1270	839	1174	1376
Sulfur	ppm ASTM D5185m 2060	2042	2993	3615

CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m >25	▲ 60	18	8
Sodium	ppm ASTM D5185m	29	7	▲ 208
Potassium	ppm ASTM D5185m >20	27	6	▲ 166

INFRA-RED

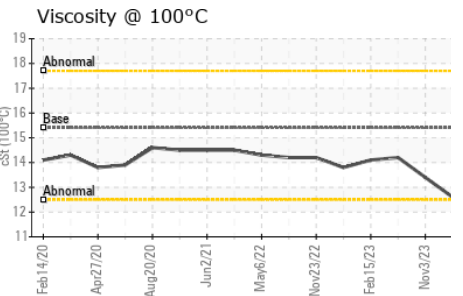
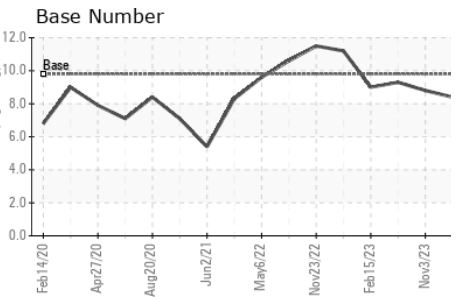
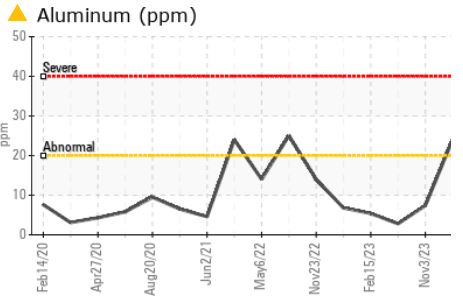
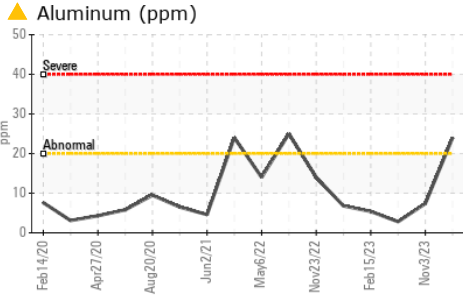
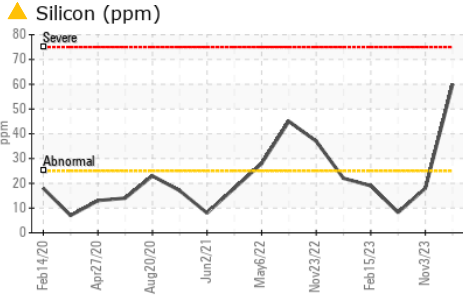
method	limit/base	current	history1	history2
Soot %	% *ASTM D7844 >6	0.9	0.5	0.3
Nitration	Abs/cm *ASTM D7624 >20	11.5	6.1	7.3
Sulfation	Abs/.1mm *ASTM D7415 >30	23.7	20.9	19.5

FLUID DEGRADATION

method	limit/base	current	history1	history2
Oxidation	Abs/.1mm *ASTM D7414 >25	23.8	17.6	15.0
Base Number (BN)	mg KOH/g ASTM D2896 9.8	8.4	8.8	9.3



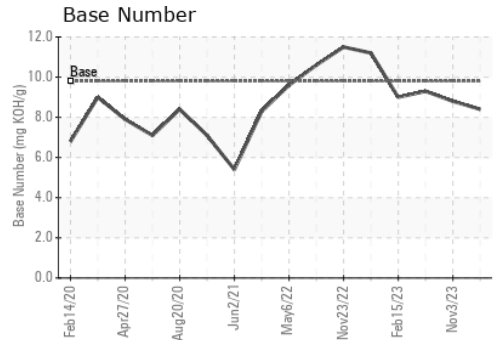
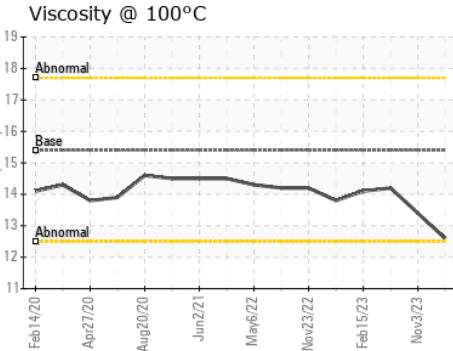
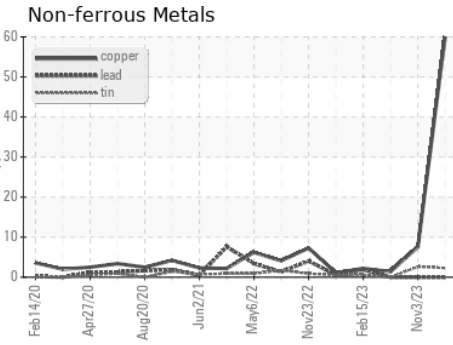
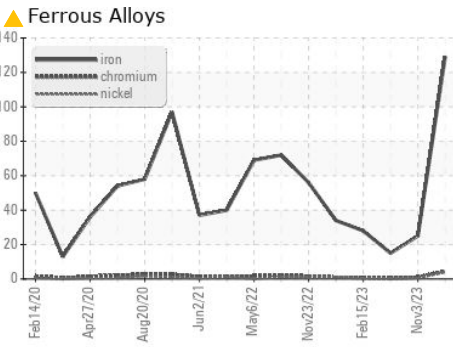
OIL ANALYSIS REPORT



VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
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
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2	
Visc @ 100°C	cSt	ASTM D445	15.4	12.6	13.4	14.2

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0109743
Lab Number : 06086892
Unique Number : 10874337
Test Package : FLEET

GFL Environmental - 005 - Wilson/Tri-East(CNG)
 2810 Contentnea Road S
 Wilson, NC
 US 27893-8501
 Contact: SPENCER LIGGON
 spencer.liggon@gflenv.com
 T: (800)207-6618
 F:

To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)