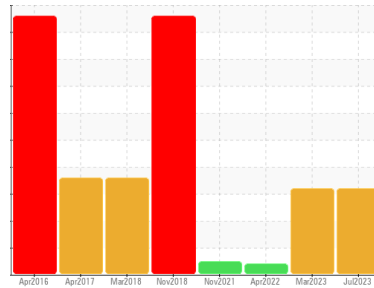




OIL ANALYSIS REPORT

Sample Rating Trend



WEAR



Machine Id
4535

Component
Front Diesel Engine

Fluid
PETRO CANADA DURON XL SYN BLEND 15W40 (22 LTR)

DIAGNOSIS

Recommendation

The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Wear

Chromium and iron ppm levels are abnormal. Cylinder, crank, or cam shaft wear is indicated. Ring wear is indicated.

Contamination

There is a moderate amount of fuel present in the oil. Light concentration of carbon/soot present in the oil. Tests confirm the presence of fuel in the oil.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. 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	GFL0084281	GFL0070739	GFL0049117	
Sample Date	Client Info	19 Jul 2023	07 Mar 2023	14 Apr 2022	
Machine Age	kms	Client Info	282398	9154	0
Oil Age	kms	Client Info	0	279	147
Oil Changed	Client Info	Changed	Changed	Changed	
Sample Status		ABNORMAL	ABNORMAL	ABNORMAL	

CONTAMINATION

method	limit/base	current	history1	history2
Glycol	WC Method	NEG	NEG	NEG

WEAR METALS

method	limit/base	current	history1	history2	
PQ	ASTM D8184*	2	---	---	
Iron	ppm	ASTM D5185(m) >127	▲ 212	60	8
Chromium	ppm	ASTM D5185(m) >3	▲ 4	▲ 3	<1
Nickel	ppm	ASTM D5185(m) >30	<1	<1	<1
Titanium	ppm	ASTM D5185(m) >2	0	<1	0
Silver	ppm	ASTM D5185(m) >2	0	0	0
Aluminum	ppm	ASTM D5185(m) >59	8	▲ 9	2
Lead	ppm	ASTM D5185(m) >29	7	4	2
Copper	ppm	ASTM D5185(m) >135	5	7	6
Tin	ppm	ASTM D5185(m) >2	1	2	<1
Antimony	ppm	ASTM D5185(m)	0	<1	0
Vanadium	ppm	ASTM D5185(m)	<1	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) 1	2	5	31
Barium	ppm	ASTM D5185(m) 1	0	0	0
Molybdenum	ppm	ASTM D5185(m) 60	53	57	69
Manganese	ppm	ASTM D5185(m) 1	2	<1	<1
Magnesium	ppm	ASTM D5185(m) 1010	851	851	641
Calcium	ppm	ASTM D5185(m) 1070	907	1057	1366
Phosphorus	ppm	ASTM D5185(m) 1150	924	1005	979
Zinc	ppm	ASTM D5185(m) 1270	1047	1085	1112
Sulfur	ppm	ASTM D5185(m) 2060	2049	2379	2742
Lithium	ppm	ASTM D5185(m)	<1	<1	<1

CONTAMINANTS

method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185(m) >18	8	▲ 19	10
Sodium	ppm	ASTM D5185(m)	2	3	2
Potassium	ppm	ASTM D5185(m) >20	1	3	3
Fuel	%	ASTM D7593* >2.0	▲ 4.5	<1.0	0.7

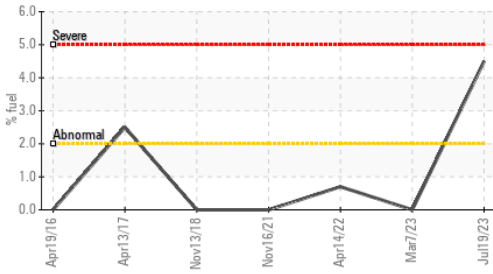
INFRA-RED

method	limit/base	current	history1	history2	
Soot %	%	ASTM D7844* >3	▲ 3.8	1.2	0
Nitration	Abs/cm	ASTM D7624* >20	14.1	9.2	5.2
Sulfation	Abs/.1mm	ASTM D7415* >30	31.0	24.3	19.5

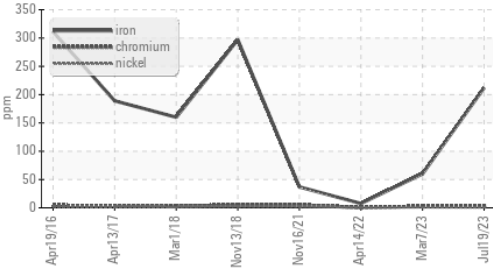


OIL ANALYSIS REPORT

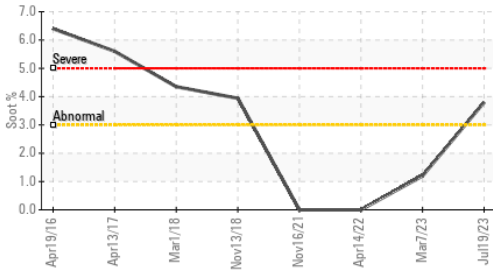
Fuel Dilution



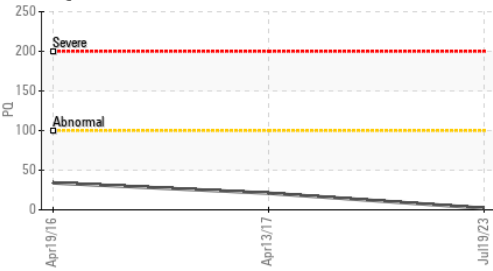
Ferrous Alloys



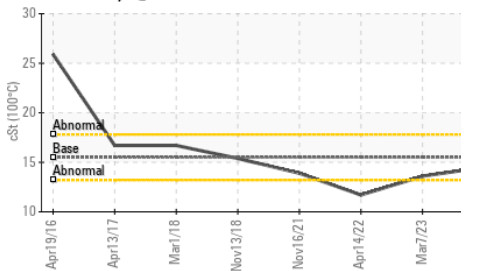
Soot %



PQ



Viscosity @ 100°C



FLUID DEGRADATION

method	limit/base	current	history1	history2
Oxidation	Abs./1mm ASTM D7414*	>25	24.1	16.8
Base Number (BN)	mg KOH/g ASTM D2896*	9.6	7.00	5.97

VISUAL

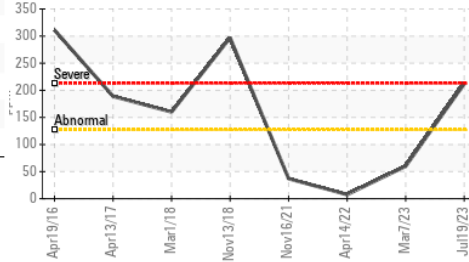
method	limit/base	current	history1	history2
Emulsified Water	scalar Visual*	>0.2	NEG	NEG
Free Water	scalar Visual*		NEG	NEG

FLUID PROPERTIES

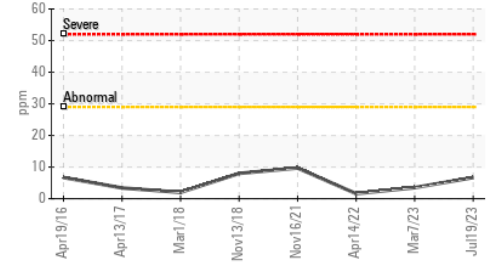
method	limit/base	current	history1	history2
Visc @ 100°C	cSt ASTM D7279(m)	15.5	14.5	13.6

GRAPHS

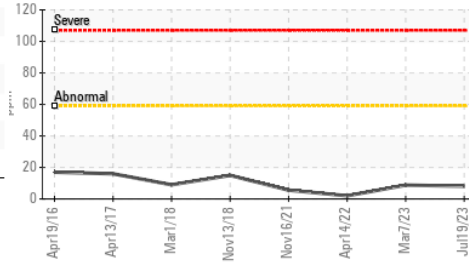
Iron (ppm)



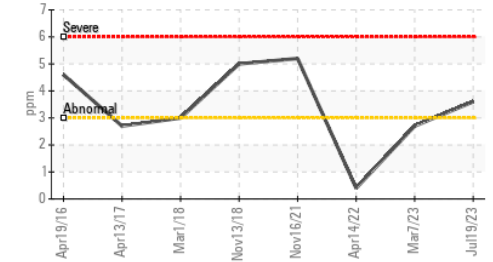
Lead (ppm)



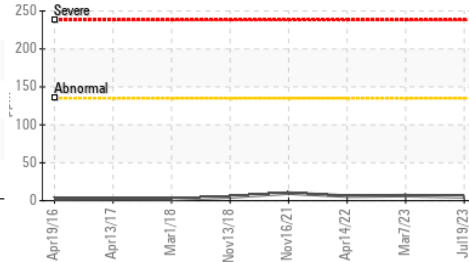
Aluminum (ppm)



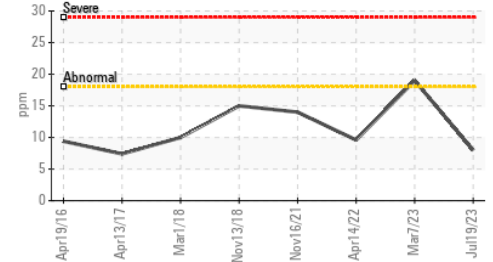
Chromium (ppm)



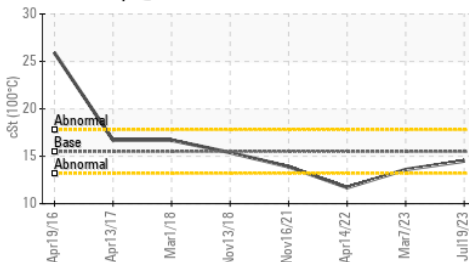
Copper (ppm)



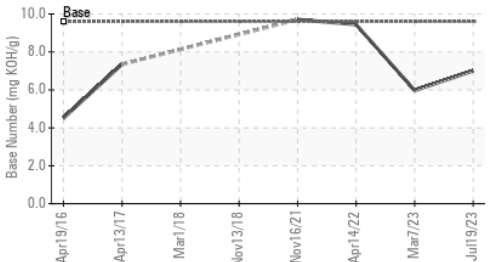
Silicon (ppm)



Viscosity @ 100°C



Base Number



ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 GFL Environmental - 550 - Rocky View County
Sample No. : GFL0084281
Lab Number : 02571638
Unique Number : 5616689
Test Package : MOB 2 (Additional Tests: FuelDilution, PercentFuel, PQ)

Received : 24 Jul 2023
Diagnosed : 26 Jul 2023
Diagnostician : 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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