



LIEBHERR

OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL



Machine Id
LIEBHERR R944CEW 031629-793

Component
Diesel Engine

Fluid
PETRO CANADA 10W40 (38 GAL)

RECOMMENDATION

The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition. No other corrective action is recommended at this time.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LH0285001	LH0227401	LH
Sample Date		Client Info		01 Mar 2024	08 Apr 2022	09 Jan 2022
Machine Age	hrs	Client Info		15574	13549	12577
Oil Age	hrs	Client Info		0	0	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	NORMAL	NORMAL

WEAR

Tin ppm levels are abnormal. Slide bearing wear is indicated.

Iron	ppm	ASTM D5185(m)	>100	82	23	29
Chromium	ppm	ASTM D5185(m)	>5	2	<1	<1
Nickel	ppm	ASTM D5185(m)	>5	<1	0	<1
Titanium	ppm	ASTM D5185(m)		0	0	0
Silver	ppm	ASTM D5185(m)	>3	<1	0	0
Aluminum	ppm	ASTM D5185(m)	>15	3	1	2
Lead	ppm	ASTM D5185(m)	>30	11	<1	<1
Copper	ppm	ASTM D5185(m)	>125	158	1	1
Tin	ppm	ASTM D5185(m)	>5	▲ 6	<1	<1
Vanadium	ppm	ASTM D5185(m)		0	0	0

CONTAMINATION

Light fuel dilution occurring. Light concentration of carbon/soot present in the oil. No other contaminants were detected in the oil.

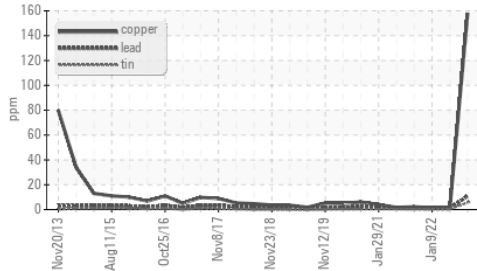
Silicon	ppm	ASTM D5185(m)	>60	9	6	8
Potassium	ppm	ASTM D5185(m)	>20	2	<1	<1
Fuel	%	ASTM D7593*	>5	1.1	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol	%	ASTM D7922*		0.0	NEG	NEG
Soot %	%	ASTM D7844*	>3	▲ 3.3	1.5	0.2
Nitration	Abs/cm	ASTM D7624*	>20	16.5	9.3	3.5
Sulfation	Abs/.1mm	ASTM D7415*	>30	29.6	22.9	13.4
Emulsified Water	scalar	Visual*	>0.2	NEG	NEG	NEG

FLUID CONDITION

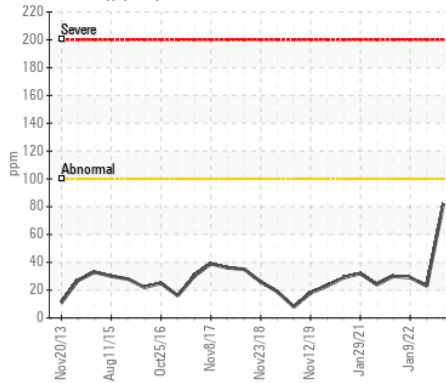
The oil is no longer serviceable as a result of the abnormal and/or severe wear.

Sodium	ppm	ASTM D5185(m)	>20	44	1	0
Boron	ppm	ASTM D5185(m)		37	4	4
Barium	ppm	ASTM D5185(m)		16	0	0
Molybdenum	ppm	ASTM D5185(m)		52	62	67
Manganese	ppm	ASTM D5185(m)		2	<1	<1
Magnesium	ppm	ASTM D5185(m)		924	1034	1057
Calcium	ppm	ASTM D5185(m)		1928	1086	1176
Phosphorus	ppm	ASTM D5185(m)		1120	1083	1130
Zinc	ppm	ASTM D5185(m)		1290	1266	1274
Sulfur	ppm	ASTM D5185(m)		2558	2588	2632
Oxidation	Abs/.1mm	ASTM D7414*	>25	24.7	15.2	5.4
Visc @ 100°C	cSt	ASTM D7279(m)		13.2	13.5	13.6

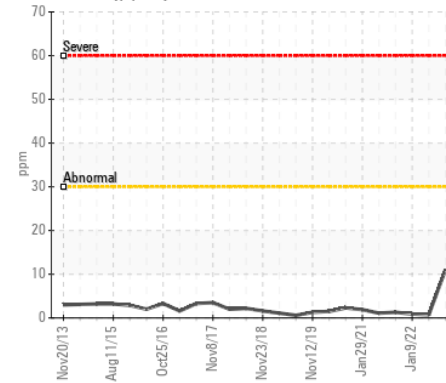
▲ Non-ferrous Metals



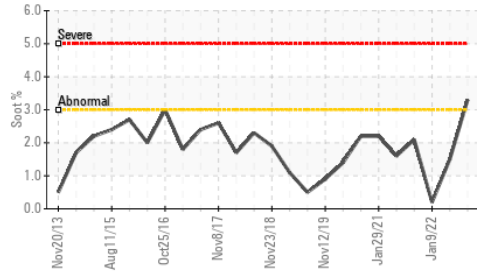
Iron (ppm)



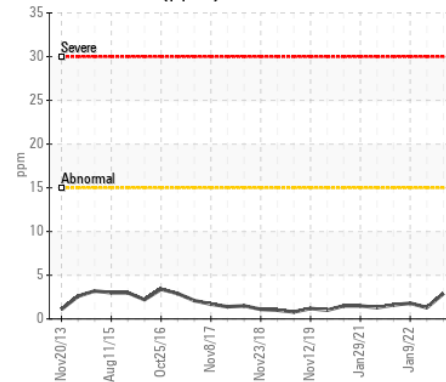
Lead (ppm)



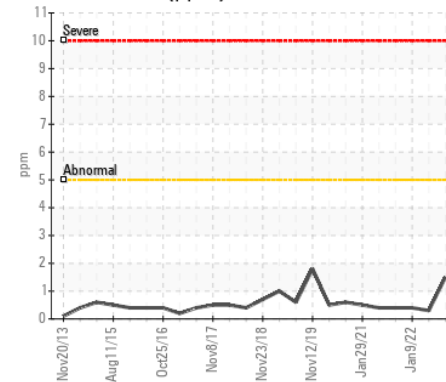
▲ Soot %



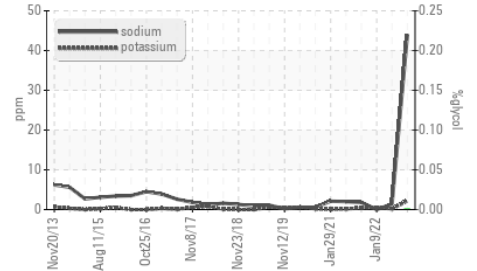
Aluminum (ppm)



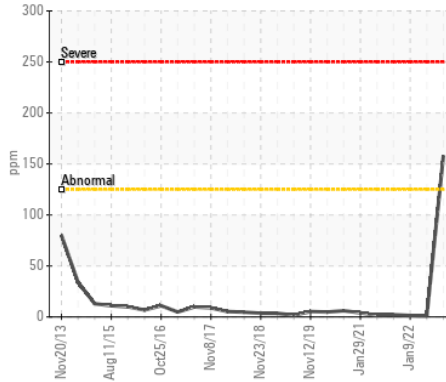
Chromium (ppm)



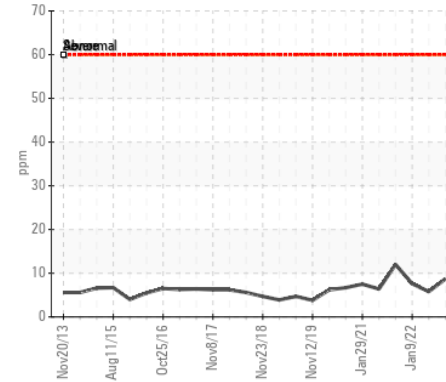
Glycol Contamination



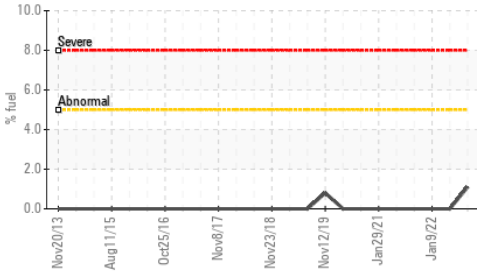
Copper (ppm)



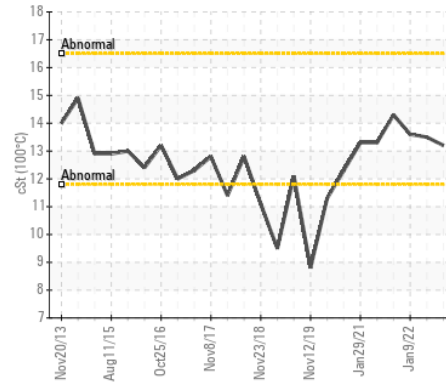
Silicon (ppm)



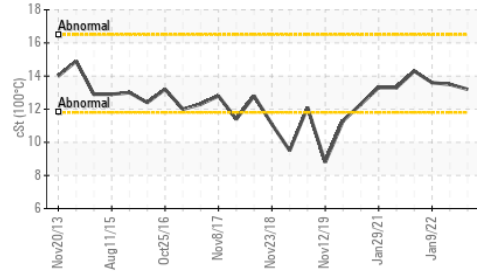
Fuel Dilution



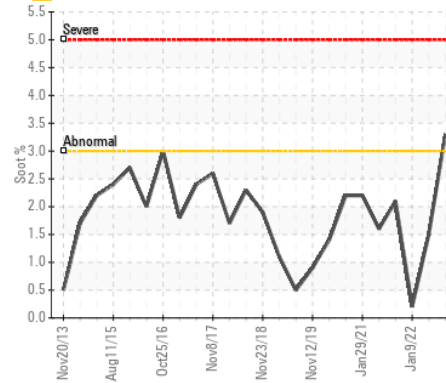
Viscosity @ 100°C



Viscosity @ 100°C



▲ Soot %



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : LH0285001 **Received** : 07 Mar 2024
Lab Number : 02620478 **Tested** : 12 Mar 2024
Unique Number : 5737588 **Diagnosed** : 12 Mar 2024 - Kevin Marson
Test Package : MOB 1 (Additional Tests: FuelDilution, Glycol, PercentFuel)

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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.