



# LIEBHERR

## OIL ANALYSIS REPORT

WEAR	<b>NORMAL</b>
CONTAMINATION	<b>NORMAL</b>
FLUID CONDITION	<b>ABNORMAL</b>



Area  
**(355226)**  
Machine Id  
**LIEBHERR R938 053191-1650**  
Component  
**Diesel Engine**  
Fluid  
**PETRO CANADA 10W40 (--- GAL)**

### RECOMMENDATION

The oil change at the time of sampling has been noted. Resample at the next service interval to monitor. No other corrective action is recommended at this time.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>LH0284898</b>	LH0274642	LH0279026
Sample Date		Client Info		<b>13 Feb 2024</b>	01 Nov 2023	01 Nov 2023
Machine Age	hrs	Client Info		<b>3960</b>	3610	3610
Oil Age	hrs	Client Info		<b>0</b>	0	0
Filter Age	hrs	Client Info		<b>0</b>	0	0
Oil Changed		Client Info		<b>Changed</b>	Changed	Changed
Filter Changed		Client Info		<b>Changed</b>	Changed	Changed
Sample Status				<b>ABNORMAL</b>	ABNORMAL	NORMAL

### WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185(m)	>100	<b>4</b>	3	4
Chromium	ppm	ASTM D5185(m)	>5	<b>&lt;1</b>	0	<1
Nickel	ppm	ASTM D5185(m)	>5	<b>0</b>	0	0
Titanium	ppm	ASTM D5185(m)		<b>0</b>	0	0
Silver	ppm	ASTM D5185(m)	>3	<b>0</b>	<1	<1
Aluminum	ppm	ASTM D5185(m)	>15	<b>3</b>	1	2
Lead	ppm	ASTM D5185(m)	>30	<b>0</b>	<1	<1
Copper	ppm	ASTM D5185(m)	>125	<b>1</b>	2	3
Tin	ppm	ASTM D5185(m)	>5	<b>0</b>	0	0
Vanadium	ppm	ASTM D5185(m)		<b>0</b>	0	0

### CONTAMINATION

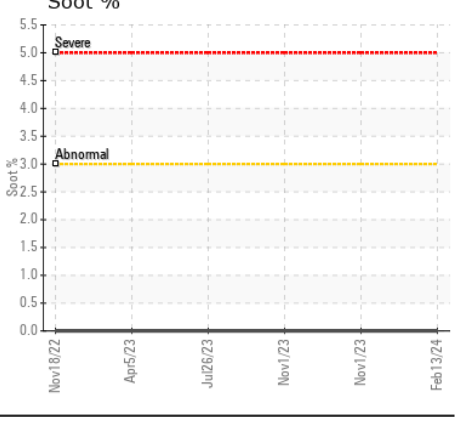
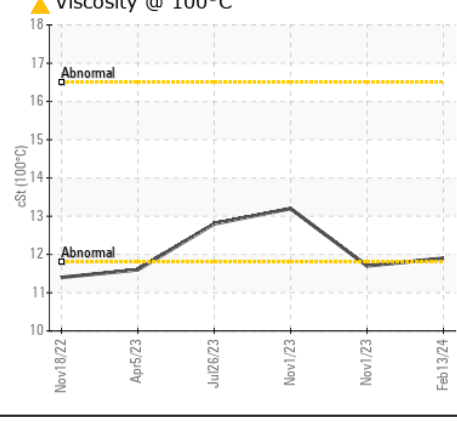
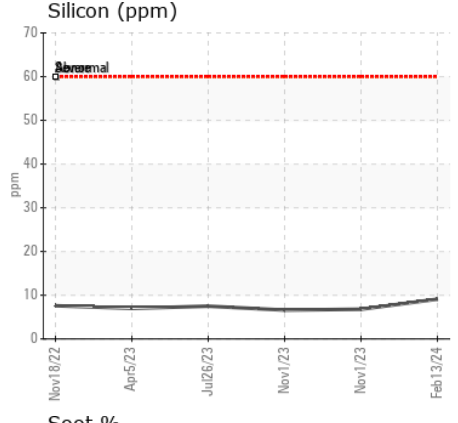
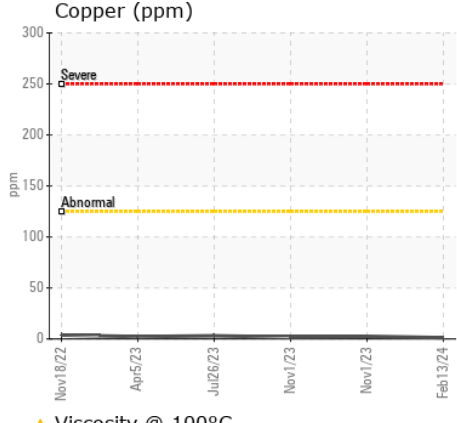
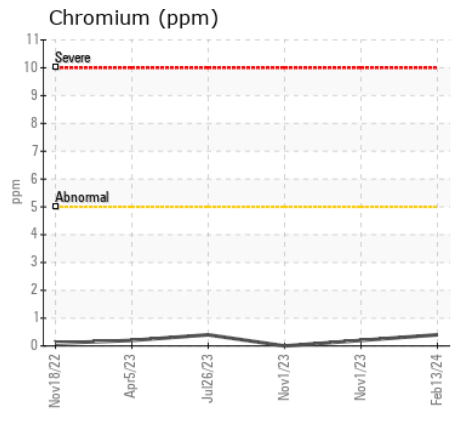
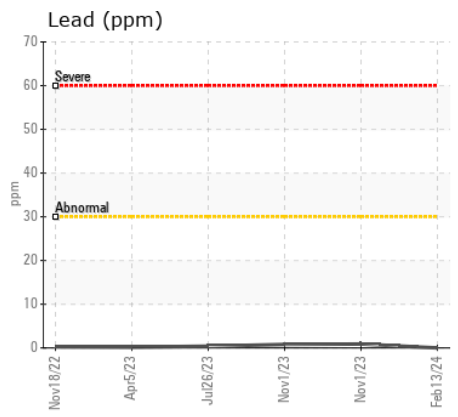
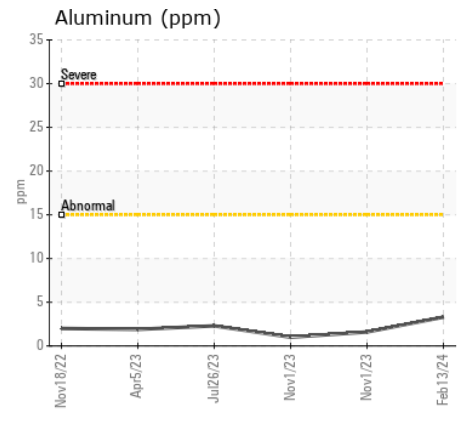
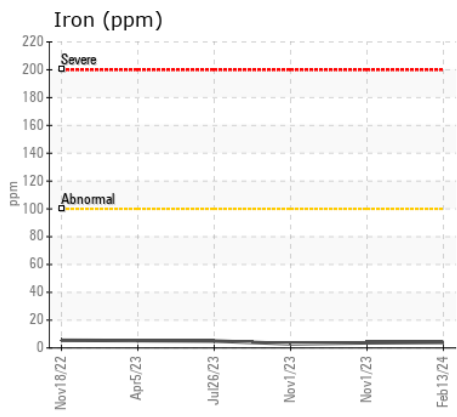
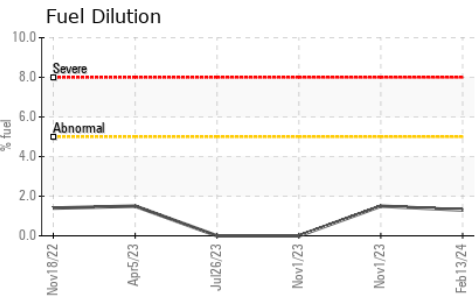
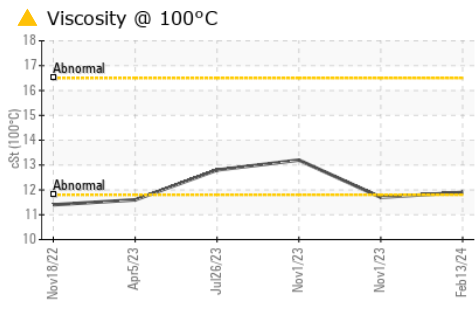
Light fuel dilution occurring. No other contaminants were detected in the oil.

Silicon	ppm	ASTM D5185(m)	>60	<b>9</b>	7	7
Potassium	ppm	ASTM D5185(m)	>20	<b>3</b>	0	0
Fuel	%	ASTM D7593*	>5	<b>1.3</b>	1.5	<1.0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	ASTM D7844*	>3	<b>0</b>	0	0
Nitration	Abs/cm	ASTM D7624*	>20	<b>9.1</b>	8.1	8.7
Sulfation	Abs/.1mm	ASTM D7415*	>30	<b>20.0</b>	19.2	19.9
Emulsified Water	scalar	Visual*	>0.2	<b>NEG</b>	NEG	NEG

### FLUID CONDITION

Viscosity of sample indicates oil is within SAE 30 range, advise investigate. The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185(m)	>20	<b>4</b>	2	2
Boron	ppm	ASTM D5185(m)		<b>35</b>	2	1
Barium	ppm	ASTM D5185(m)		<b>0</b>	<1	<1
Molybdenum	ppm	ASTM D5185(m)		<b>59</b>	60	59
Manganese	ppm	ASTM D5185(m)		<b>0</b>	0	0
Magnesium	ppm	ASTM D5185(m)		<b>1091</b>	981	973
Calcium	ppm	ASTM D5185(m)		<b>858</b>	1071	1066
Phosphorus	ppm	ASTM D5185(m)		<b>1030</b>	1008	986
Zinc	ppm	ASTM D5185(m)		<b>1197</b>	1215	1204
Sulfur	ppm	ASTM D5185(m)		<b>2901</b>	2532	2451
Oxidation	Abs/.1mm	ASTM D7414*	>25	<b>18.9</b>	16.9	17.8
Visc @ 100°C	cSt	ASTM D7279(m)		<b>▲ 11.9</b>	▲ 11.7	13.2



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : LH0284898  
**Lab Number** : 02617580  
**Unique Number** : 5734690  
**Test Package** : MOB 1 ( Additional Tests: FUELDILUTION, PercentFuel )  
**Received** : 23 Feb 2024  
**Tested** : 26 Feb 2024  
**Diagnosed** : 26 Feb 2024 - Kevin Marson

**THOMAS CAVANAGH CONSTRUCTION LTD**  
 RR # 2, 9094 CAVANAGH ROAD  
 ASHTON, ON  
 CA K0A 1B0  
 Contact: Keith

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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