



# OIL ANALYSIS REPORT

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

Machine Id  
**CUMMINS 232**  
Component  
**Rear Diesel Engine**  
Fluid  
**ESSO XD-3 EXTRA 15W40 (--- GAL)**

## RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>WC0889116</b>	WC0889103	WC0866442
Sample Date		Client Info		<b>22 Feb 2024</b>	28 Dec 2023	24 Nov 2023
Machine Age	kms	Client Info		<b>0</b>	0	0
Oil Age	kms	Client Info		<b>8949</b>	9275	8939
Filter Age	kms	Client Info		<b>8949</b>	9275	8939
Oil Changed		Client Info		<b>Changed</b>	Changed	Changed
Filter Changed		Client Info		<b>Changed</b>	Changed	Changed
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

## WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185(m)	>90	<b>6</b>	6	6
Chromium	ppm	ASTM D5185(m)	>20	<b>&lt;1</b>	0	0
Nickel	ppm	ASTM D5185(m)	>2	<b>&lt;1</b>	<1	<1
Titanium	ppm	ASTM D5185(m)	>2	<b>0</b>	0	0
Silver	ppm	ASTM D5185(m)	>2	<b>0</b>	0	<1
Aluminum	ppm	ASTM D5185(m)	>20	<b>2</b>	1	1
Lead	ppm	ASTM D5185(m)	>40	<b>&lt;1</b>	0	0
Copper	ppm	ASTM D5185(m)	>330	<b>&lt;1</b>	1	1
Tin	ppm	ASTM D5185(m)	>15	<b>0</b>	0	0
Vanadium	ppm	ASTM D5185(m)		<b>0</b>	0	0

## CONTAMINATION

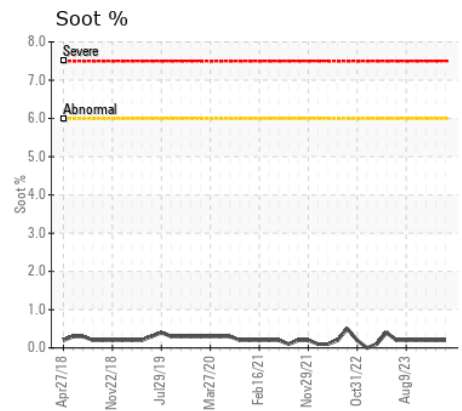
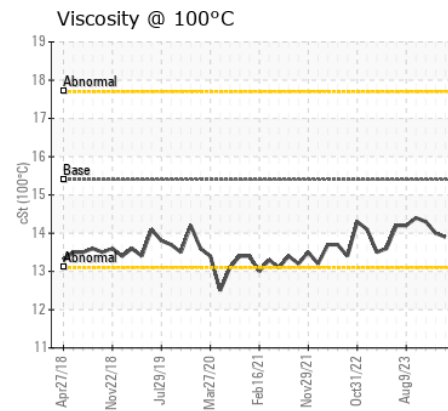
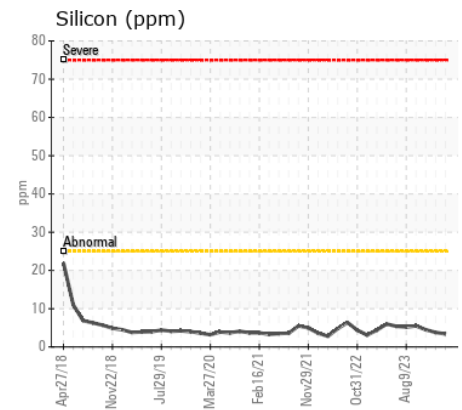
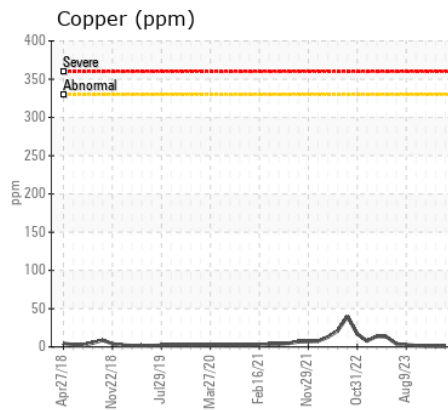
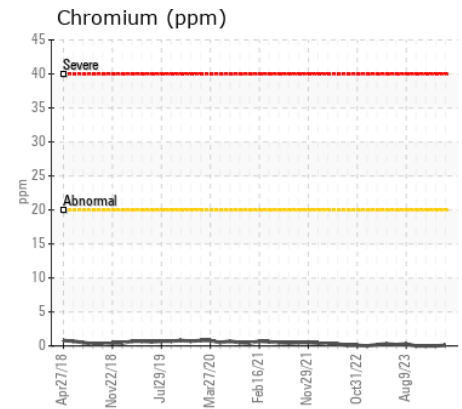
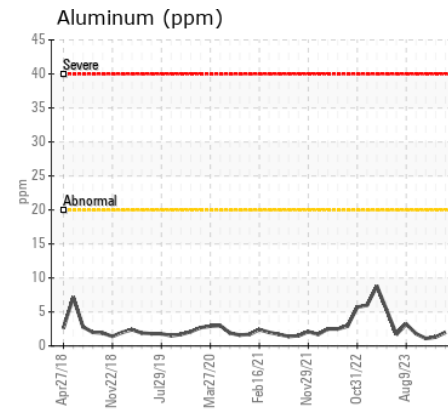
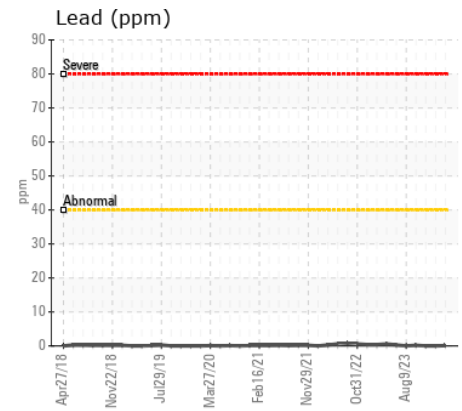
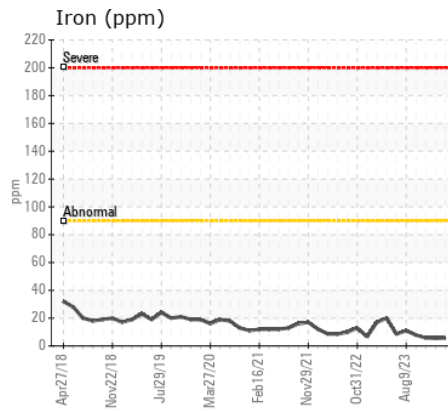
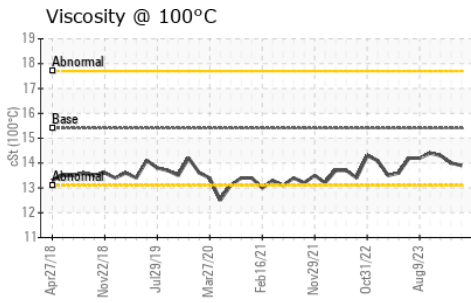
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185(m)	>25	<b>3</b>	4	4
Potassium	ppm	ASTM D5185(m)	>20	<b>5</b>	5	4
Fuel		WC Method	>3.0	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	ASTM D7844*	>6	<b>0.2</b>	0.2	0.2
Nitration	Abs/cm	ASTM D7624*	>20	<b>8.2</b>	8.7	8.6
Sulfation	Abs/.1mm	ASTM D7415*	>30	<b>21.6</b>	22.4	22.7
Emulsified Water	scalar	Visual*	>0.2	<b>NEG</b>	NEG	NEG

## FLUID CONDITION

The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185(m)	>192	<b>2</b>	2	2
Boron	ppm	ASTM D5185(m)		<b>112</b>	111	114
Barium	ppm	ASTM D5185(m)		<b>0</b>	0	<1
Molybdenum	ppm	ASTM D5185(m)		<b>1</b>	<1	0
Manganese	ppm	ASTM D5185(m)		<b>0</b>	0	0
Magnesium	ppm	ASTM D5185(m)		<b>20</b>	14	12
Calcium	ppm	ASTM D5185(m)	3780	<b>2163</b>	2201	2156
Phosphorus	ppm	ASTM D5185(m)	1370	<b>939</b>	973	948
Zinc	ppm	ASTM D5185(m)	1500	<b>1117</b>	1132	1146
Sulfur	ppm	ASTM D5185(m)	3800	<b>2967</b>	2995	2857
Oxidation	Abs/.1mm	ASTM D7414*	>25	<b>17.7</b>	18.7	19.7
Visc @ 100°C	cSt	ASTM D7279(m)	15.4	<b>13.9</b>	14.0	14.3



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : WC0889116 **Received** : 04 Mar 2024  
**Lab Number** : 02619537 **Tested** : 04 Mar 2024  
**Unique Number** : 5736647 **Diagnosed** : 04 Mar 2024 - Wes Davis  
**Test Package** : MOB 1

**CITY OF THUNDER BAY**  
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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.