



# OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id  
**CUMMINS 228**  
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>WC0889173</b>	WC0866466	WC0816388
Sample Date		Client Info		<b>21 Dec 2023</b>	03 Nov 2023	15 Sep 2023
Machine Age	kms	Client Info		<b>0</b>	0	0
Oil Age	kms	Client Info		<b>8986</b>	9863	10231
Filter Age	kms	Client Info		<b>8986</b>	9863	10231
Oil Changed		Client Info		<b>Changed</b>	Changed	Changed
Filter Changed		Client Info		<b>N/A</b>	N/A	N/A
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

## WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185(m)	>90	<b>5</b>	7	7
Chromium	ppm	ASTM D5185(m)	>20	<b>0</b>	0	0
Nickel	ppm	ASTM D5185(m)	>2	<b>0</b>	<1	<1
Titanium	ppm	ASTM D5185(m)	>2	<b>0</b>	0	0
Silver	ppm	ASTM D5185(m)	>2	<b>0</b>	<1	<1
Aluminum	ppm	ASTM D5185(m)	>20	<b>1</b>	2	2
Lead	ppm	ASTM D5185(m)	>40	<b>0</b>	0	<1
Copper	ppm	ASTM D5185(m)	>330	<b>2</b>	3	6
Tin	ppm	ASTM D5185(m)	>15	<b>0</b>	0	0
Vanadium	ppm	ASTM D5185(m)		<b>0</b>	0	0

## CONTAMINATION

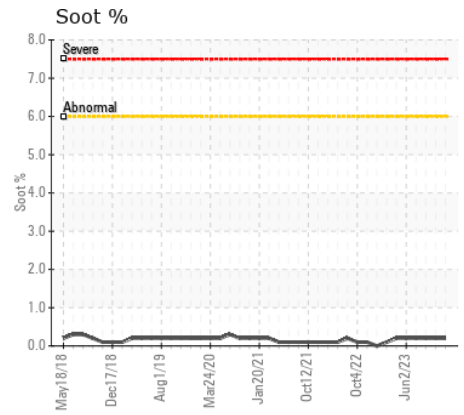
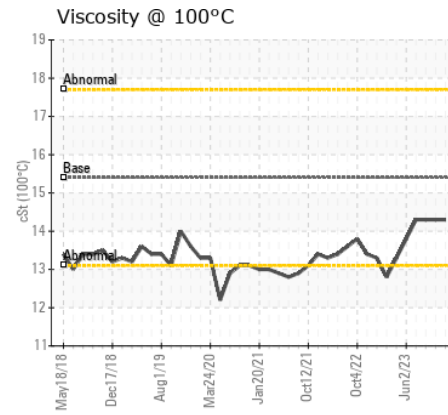
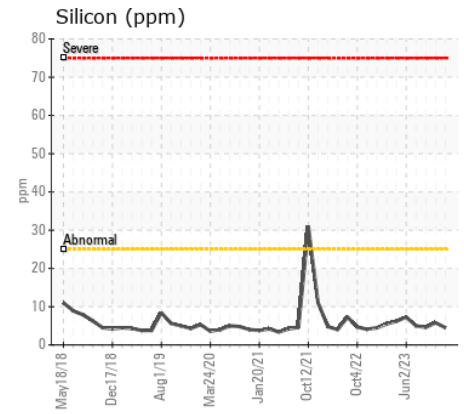
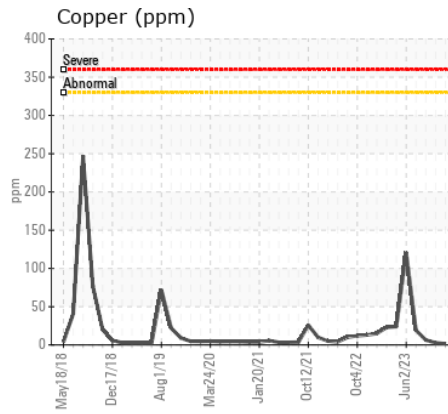
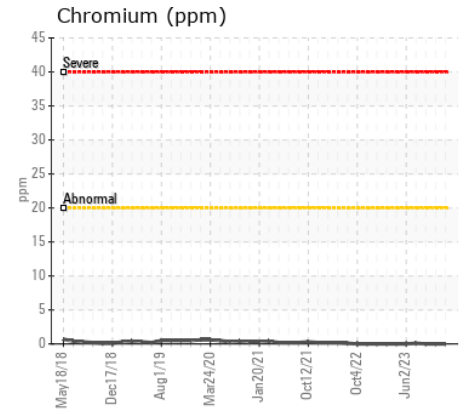
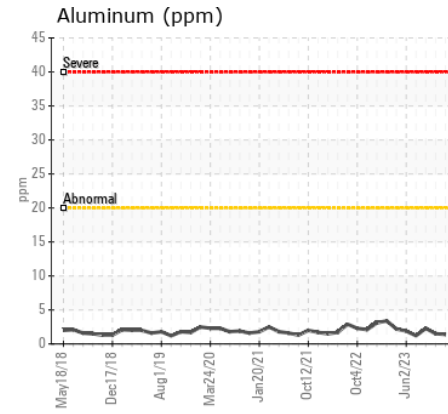
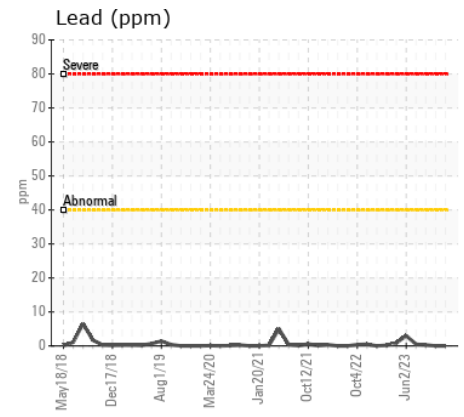
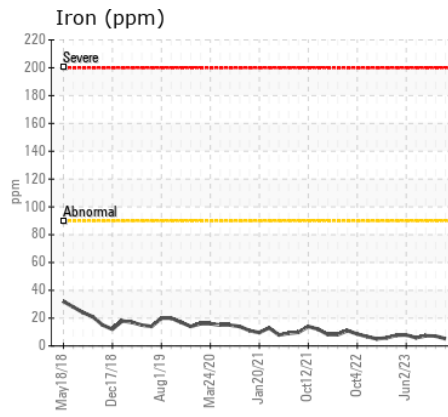
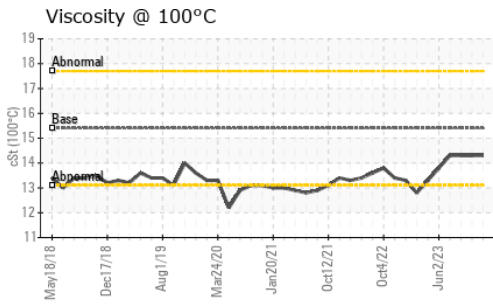
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185(m)	>25	<b>4</b>	6	5
Potassium	ppm	ASTM D5185(m)	>20	<b>8</b>	4	6
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>8.6</b>	9.1	9.6
Sulfation	Abs/.1mm	ASTM D7415*	>30	<b>22.3</b>	23.5	25.6
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>	3	3
Boron	ppm	ASTM D5185(m)		<b>111</b>	101	74
Barium	ppm	ASTM D5185(m)		<b>0</b>	<1	0
Molybdenum	ppm	ASTM D5185(m)		<b>&lt;1</b>	0	1
Manganese	ppm	ASTM D5185(m)		<b>0</b>	0	0
Magnesium	ppm	ASTM D5185(m)		<b>15</b>	14	23
Calcium	ppm	ASTM D5185(m)	3780	<b>2219</b>	2214	2194
Phosphorus	ppm	ASTM D5185(m)	1370	<b>961</b>	921	901
Zinc	ppm	ASTM D5185(m)	1500	<b>1152</b>	1172	1113
Sulfur	ppm	ASTM D5185(m)	3800	<b>3056</b>	2817	2802
Oxidation	Abs/.1mm	ASTM D7414*	>25	<b>18.5</b>	20.6	25.2
Visc @ 100°C	cSt	ASTM D7279(m)	15.4	<b>14.3</b>	14.3	14.3



ISO 17025:2017  
Accredited  
Laboratory

**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : WC0889173  
**Lab Number** : 02606746  
**Unique Number** : 5707832  
**Test Package** : MOB 1

**Received** : 05 Jan 2024  
**Diagnosed** : 05 Jan 2024  
**Diagnostician** : Wes Davis

**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.