



# OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	MARGINAL
FLUID CONDITION	NORMAL

Machine Id  
**185**  
Component  
**Rear Diesel Engine**  
Fluid  
**ESSO XD-3 EXTRA 15W40 (--- 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>WC0889123</b>	WC0889175	WC0866460
Sample Date		Client Info		<b>26 Feb 2024</b>	22 Dec 2023	03 Nov 2023
Machine Age	kms	Client Info		<b>0</b>	0	0
Oil Age	kms	Client Info		<b>9660</b>	9226	10320
Filter Age	kms	Client Info		<b>9660</b>	9226	10320
Oil Changed		Client Info		<b>Changed</b>	Changed	Changed
Filter Changed		Client Info		<b>N/A</b>	N/A	N/A
Sample Status				<b>MARGINAL</b>	ABNORMAL	SEVERE

## WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185(m)	>90	<b>12</b>	13	17
Chromium	ppm	ASTM D5185(m)	>20	<b>&lt;1</b>	<1	<1
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>	2	1
Lead	ppm	ASTM D5185(m)	>40	<b>0</b>	0	<1
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

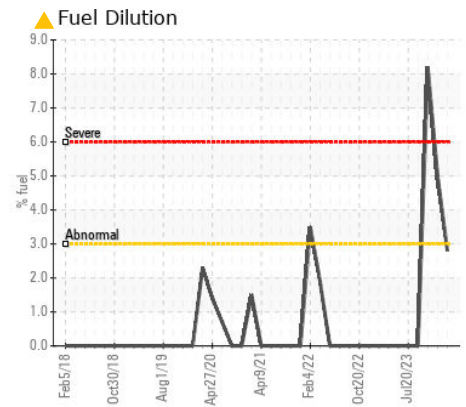
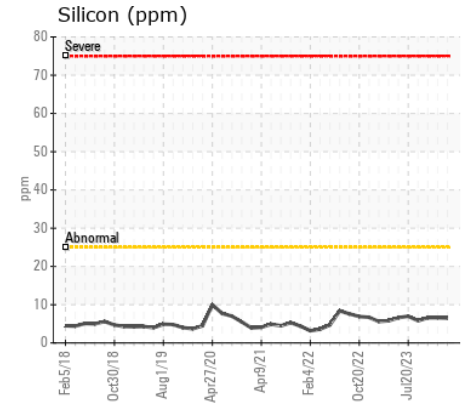
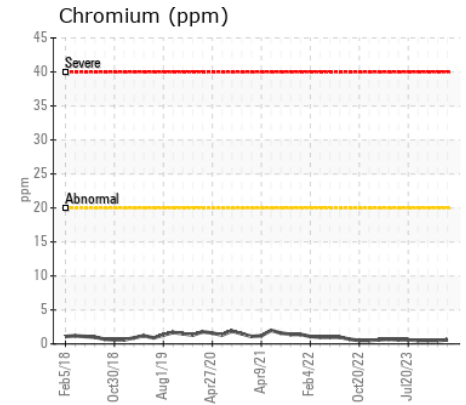
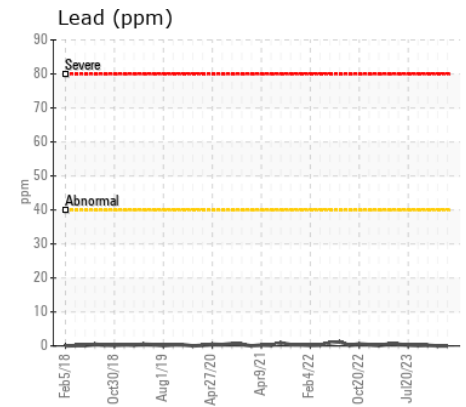
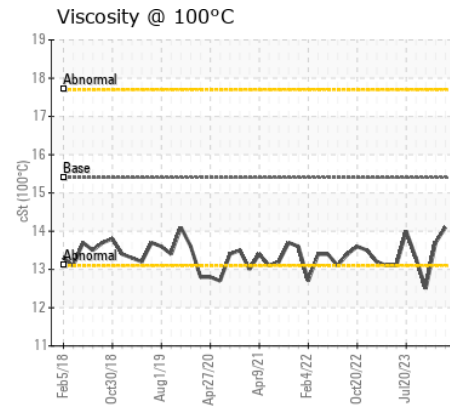
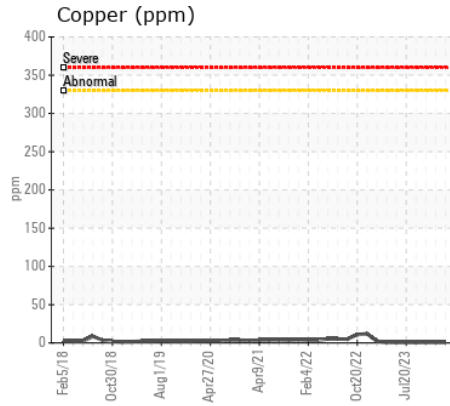
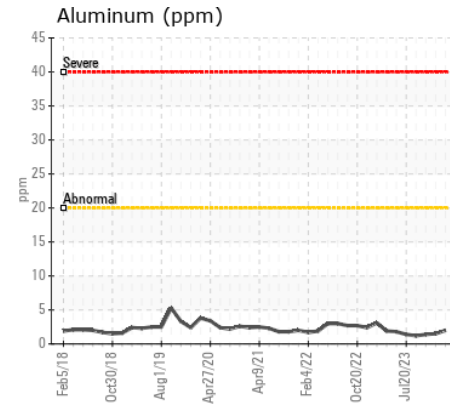
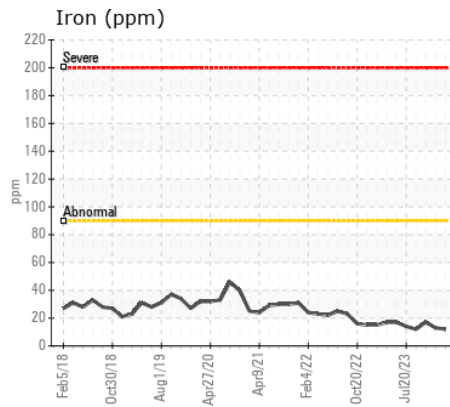
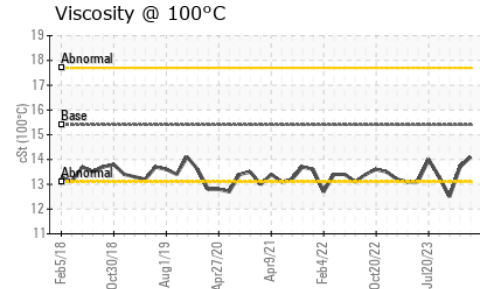
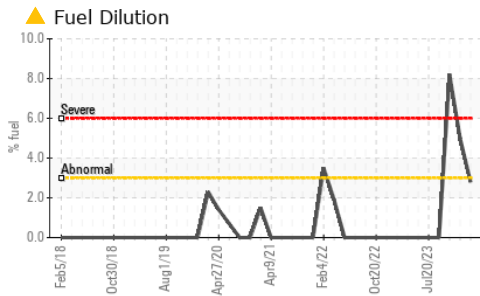
Light fuel dilution occurring. No other contaminants were detected in the oil.

Silicon	ppm	ASTM D5185(m)	>25	<b>6</b>	7	7
Potassium	ppm	ASTM D5185(m)	>20	<b>6</b>	14	4
Fuel	%	ASTM D7593*	>3.0	<b>▲ 2.8</b>	▲ 5	▲ 8.2
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	0.0	NEG
Soot %	%	ASTM D7844*	>6	<b>0.6</b>	0.6	0.7
Nitration	Abs/cm	ASTM D7624*	>20	<b>10.5</b>	11.0	12.2
Sulfation	Abs/.1mm	ASTM D7415*	>30	<b>25.8</b>	26.4	32.2
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	3
Boron	ppm	ASTM D5185(m)		<b>67</b>	69	56
Barium	ppm	ASTM D5185(m)		<b>0</b>	0	<1
Molybdenum	ppm	ASTM D5185(m)		<b>2</b>	<1	0
Manganese	ppm	ASTM D5185(m)		<b>0</b>	0	0
Magnesium	ppm	ASTM D5185(m)		<b>24</b>	13	14
Calcium	ppm	ASTM D5185(m)	3780	<b>2242</b>	2098	2071
Phosphorus	ppm	ASTM D5185(m)	1370	<b>948</b>	859	773
Zinc	ppm	ASTM D5185(m)	1500	<b>1133</b>	1036	994
Sulfur	ppm	ASTM D5185(m)	3800	<b>2936</b>	2852	2583
Oxidation	Abs/.1mm	ASTM D7414*	>25	<b>22.4</b>	24.5	34.2
Visc @ 100°C	cSt	ASTM D7279(m)	15.4	<b>14.1</b>	13.7	▲ 12.5



ISO 17025:2017  
Accredited  
Laboratory

**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : WC0889123  
**Lab Number** : 02619536  
**Unique Number** : 5736646  
**Test Package** : MOB 1 ( Additional Tests: PercentFuel )

**Received** : 04 Mar 2024  
**Tested** : 05 Mar 2024  
**Diagnosed** : 05 Mar 2024 - Wes Davis

**CITY OF THUNDER BAY**  
 AUTO MAINTENANCE STORES, 570 FORT WILLIAM ROAD  
 THUNDER BAY, ON  
 CA P7B 2Z8

Contact: Sean Malcolm  
 sean.malcolm@thunderbay.ca  
 T: (807)684-2716  
 F: (807)344-0237

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.