



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	ATTENTION

Machine Id
CUMMINS 178
Component
Rear Diesel Engine
Fluid
ESSO XD-3 EXTRA 15W40 (--- GAL)

RECOMMENDATION

Check for low coolant level. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0889179	WC0866574	WC0816354
Sample Date		Client Info		27 Dec 2023	27 Oct 2023	06 Oct 2023
Machine Age	kms	Client Info		0	0	0
Oil Age	kms	Client Info		9832	3423	11019
Filter Age	kms	Client Info		9832	3423	11019
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		N/A	N/A	N/A
Sample Status				ABNORMAL	NORMAL	ABNORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185(m)	>90	19	10	36
Chromium	ppm	ASTM D5185(m)	>20	<1	0	<1
Nickel	ppm	ASTM D5185(m)	>2	<1	<1	<1
Titanium	ppm	ASTM D5185(m)	>2	0	0	0
Silver	ppm	ASTM D5185(m)	>2	0	<1	<1
Aluminum	ppm	ASTM D5185(m)	>20	3	1	3
Lead	ppm	ASTM D5185(m)	>40	0	0	1
Copper	ppm	ASTM D5185(m)	>330	1	1	4
Tin	ppm	ASTM D5185(m)	>15	0	0	0
Vanadium	ppm	ASTM D5185(m)		0	0	0

CONTAMINATION

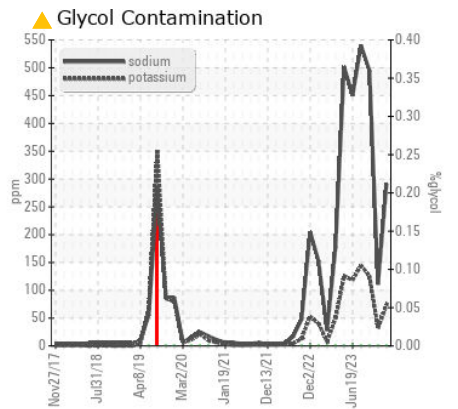
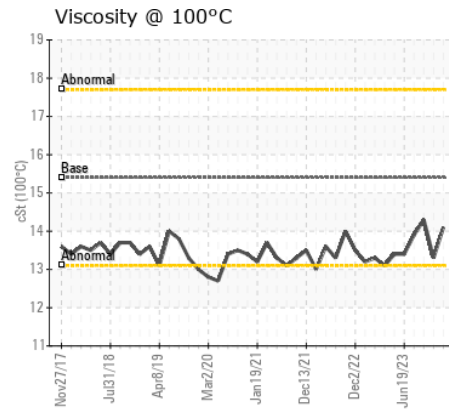
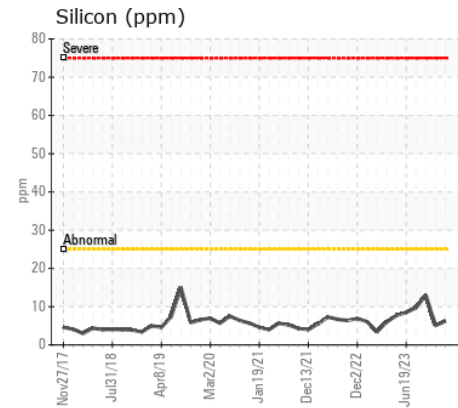
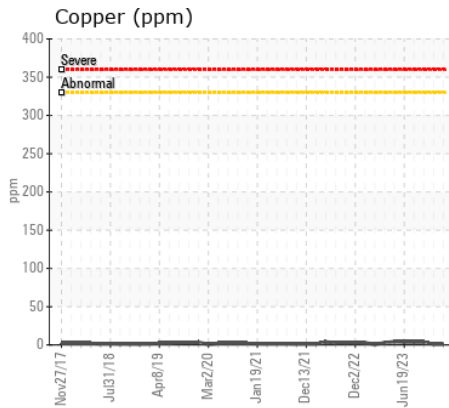
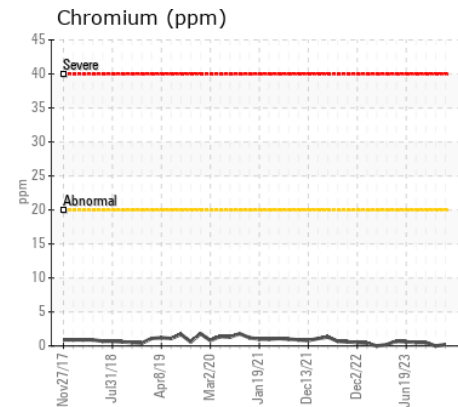
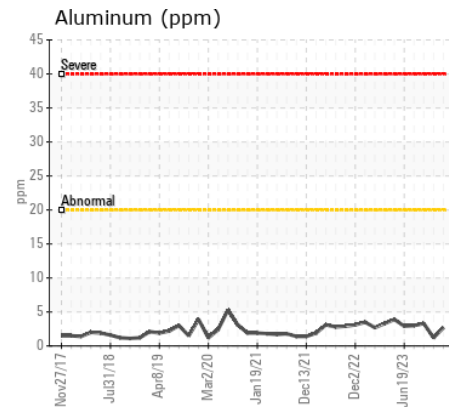
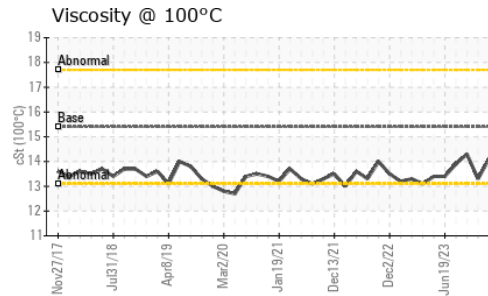
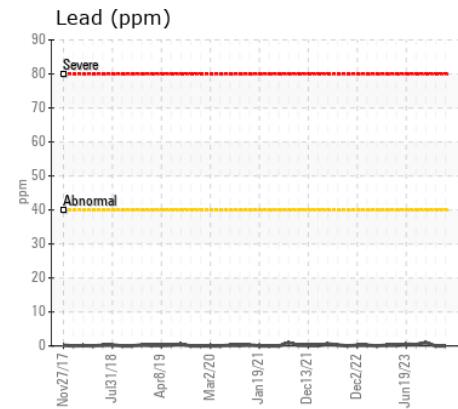
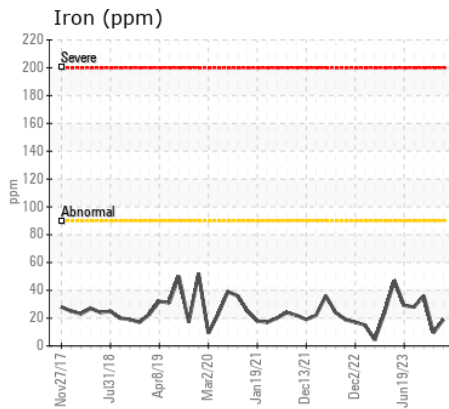
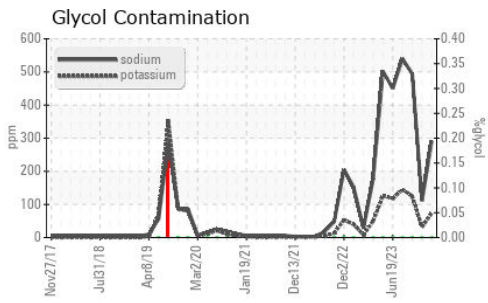
Water treatment chemicals present, indicating slow coolant leak. Test for glycol is negative.

Silicon	ppm	ASTM D5185(m)	>25	6	5	13
Potassium	ppm	ASTM D5185(m)	>20	▲ 74	32	▲ 125
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol	%	ASTM D7922*		0.0	0.0	0.0
Soot %	%	ASTM D7844*	>6	0.3	0.2	0.6
Nitration	Abs/cm	ASTM D7624*	>20	8.9	8.5	12.2
Sulfation	Abs/.1mm	ASTM D7415*	>30	22.6	23.3	30.9
Emulsified Water	scalar	Visual*	>0.2	NEG	NEG	NEG

FLUID CONDITION

The condition of the oil is acceptable for the time in service (see recommendation).

Sodium	ppm	ASTM D5185(m)	>192	▲ 291	111	▲ 494
Boron	ppm	ASTM D5185(m)		83	103	40
Barium	ppm	ASTM D5185(m)		0	<1	<1
Molybdenum	ppm	ASTM D5185(m)		<1	0	1
Manganese	ppm	ASTM D5185(m)		0	0	0
Magnesium	ppm	ASTM D5185(m)		20	13	24
Calcium	ppm	ASTM D5185(m)	3780	2064	2083	2284
Phosphorus	ppm	ASTM D5185(m)	1370	976	915	806
Zinc	ppm	ASTM D5185(m)	1500	1149	1095	1016
Sulfur	ppm	ASTM D5185(m)	3800	3168	2846	2966
Oxidation	Abs/.1mm	ASTM D7414*	>25	18.3	20.3	29.4
Visc @ 100°C	cSt	ASTM D7279(m)	15.4	14.1	13.3	14.3



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0889179 **Received** : 05 Jan 2024
Lab Number : 02606747 **Diagnosed** : 08 Jan 2024
Unique Number : 5707833 **Diagnostician** : Kevin Marson
Test Package : MOB 1 (Additional Tests: Glycol)

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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.