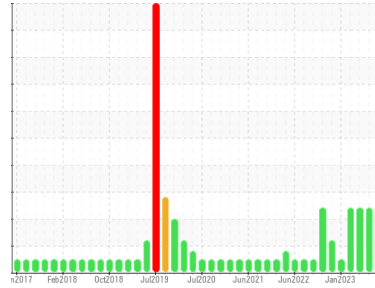




OIL ANALYSIS REPORT

Sample Rating Trend



GLYCOL



Machine Id
CUMMINS 178

Component
Rear Diesel Engine

Fluid
ESSO XD-3 EXTRA 15W40 (--- GAL)

DIAGNOSIS

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.

Wear

All component wear rates are normal.

Contamination

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

Fluid Condition

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

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0816420	WC0816565	WC0763104
Sample Date	Client Info		15 Aug 2023	19 Jun 2023	05 May 2023
Machine Age	kms	Client Info	0	0	0
Oil Age	kms	Client Info	8779	9780	9010
Oil Changed	Client Info		Changed	Changed	Changed
Sample Status			ABNORMAL	ABNORMAL	ABNORMAL

CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>3.0	<1.0	<1.0	<1.0

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m) >90	28	29	47
Chromium	ppm	ASTM D5185(m) >20	<1	<1	<1
Nickel	ppm	ASTM D5185(m) >2	<1	<1	<1
Titanium	ppm	ASTM D5185(m) >2	0	0	<1
Silver	ppm	ASTM D5185(m) >2	0	0	0
Aluminum	ppm	ASTM D5185(m) >20	3	3	4
Lead	ppm	ASTM D5185(m) >40	<1	<1	<1
Copper	ppm	ASTM D5185(m) >330	4	4	4
Tin	ppm	ASTM D5185(m) >15	0	0	<1
Antimony	ppm	ASTM D5185(m)	<1	0	0
Vanadium	ppm	ASTM D5185(m)	0	0	0
Beryllium	ppm	ASTM D5185(m)	0	0	0
Cadmium	ppm	ASTM D5185(m)	0	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	37	27	13
Barium	ppm	ASTM D5185(m)	0	0	0
Molybdenum	ppm	ASTM D5185(m)	5	15	53
Manganese	ppm	ASTM D5185(m)	<1	<1	<1
Magnesium	ppm	ASTM D5185(m)	62	200	751
Calcium	ppm	ASTM D5185(m) 3780	2125	1916	1420
Phosphorus	ppm	ASTM D5185(m) 1370	863	905	1068
Zinc	ppm	ASTM D5185(m) 1500	1014	1078	1200
Sulfur	ppm	ASTM D5185(m) 3800	2965	2801	2799
Lithium	ppm	ASTM D5185(m)	<1	<1	<1

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m) >25	10	8	8
Sodium	ppm	ASTM D5185(m) >192	▲ 540	▲ 450	▲ 502
Potassium	ppm	ASTM D5185(m) >20	▲ 145	▲ 118	▲ 126
Glycol	%	ASTM D7922*	0.0	0.0	0.0

INFRA-RED

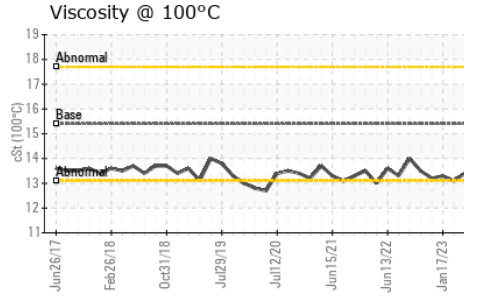
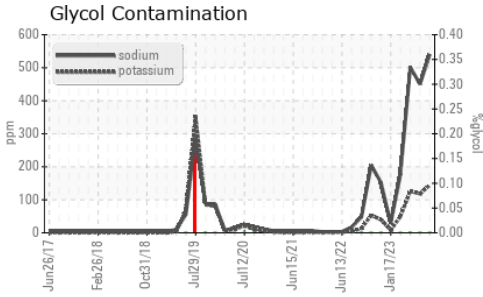
	method	limit/base	current	history1	history2
Soot %	%	ASTM D7844* >6	0.4	0.4	0.3
Nitration	Abs/cm	ASTM D7624* >20	11.0	11.0	10.3
Sulfation	Abs/.1mm	ASTM D7415* >30	28.9	28.2	22.8

FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414* >25	26.6	26.7	18.9



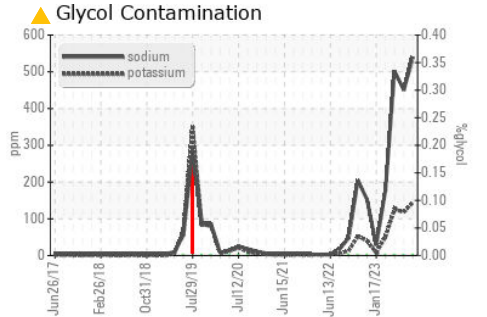
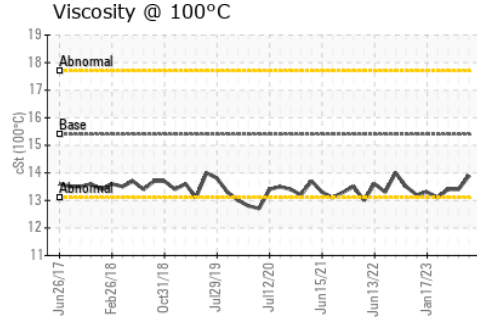
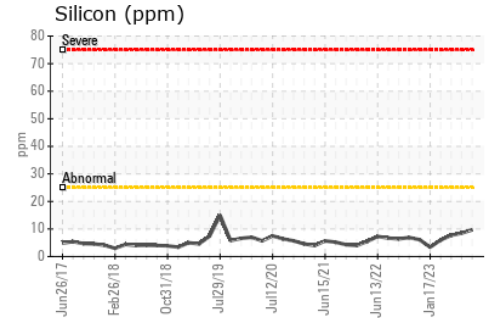
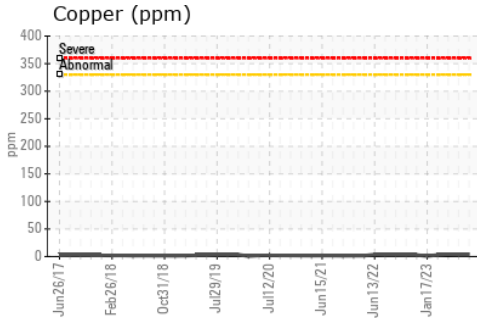
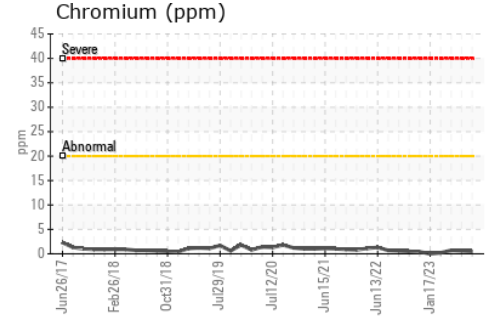
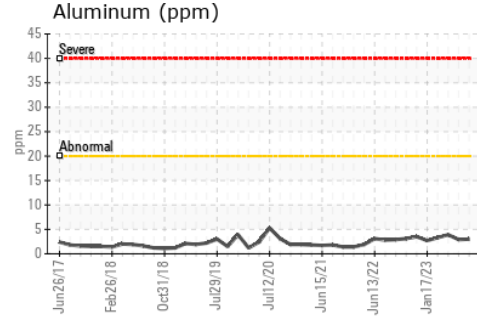
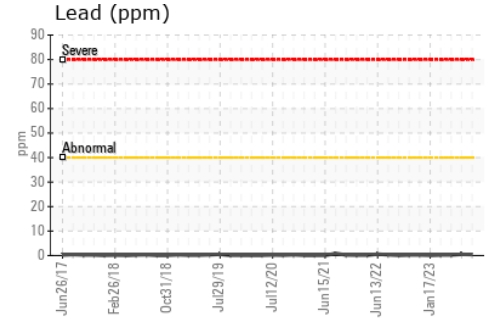
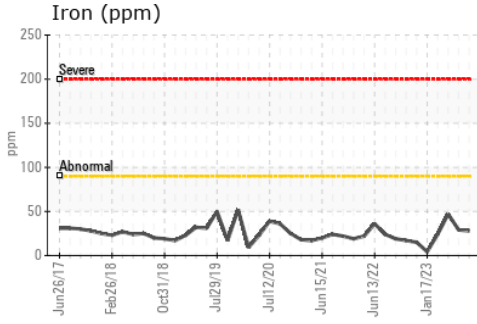
OIL ANALYSIS REPORT



VISUAL	method	limit/base	current	history1	history2
Emulsified Water	scalar	Visual*	>0.2	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D7279(m)	15.4	13.9	13.4

GRAPHS



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0816420 **Received** : 24 Aug 2023
Lab Number : 02577872 **Diagnosed** : 25 Aug 2023
Unique Number : 5630932 **Diagnostician** : Kevin Marson
Test Package : MOB 1 (Additional Tests: Glycol)

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.