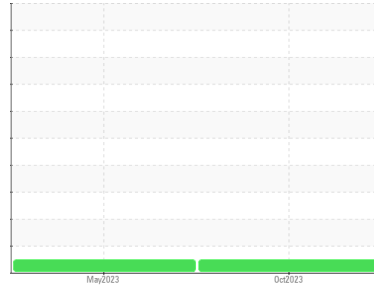




OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Machine Id
CATERPILLAR 311 130
 Component
Diesel Engine
 Fluid
PETRO CANADA 15W40 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number	Client Info			WC0822251	WC0822413	---
Sample Date	Client Info			09 Oct 2023	17 May 2023	---
Machine Age	hrs	Client Info		3326	3067	---
Oil Age	hrs	Client Info		259	289	---
Oil Changed	Client Info			Changed	Changed	---
Sample Status				NORMAL	NORMAL	---

CONTAMINATION		method	limit/base	current	history1	history2
Fuel	WC Method	>5		<1.0	<1.0	---
Glycol	WC Method			NEG	NEG	---

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	16	10	---
Chromium	ppm	ASTM D5185m	>20	5	<1	---
Nickel	ppm	ASTM D5185m	>4	<1	0	---
Titanium	ppm	ASTM D5185m		<1	0	---
Silver	ppm	ASTM D5185m	>3	0	0	---
Aluminum	ppm	ASTM D5185m	>20	14	2	---
Lead	ppm	ASTM D5185m	>40	0	0	---
Copper	ppm	ASTM D5185m	>330	1	<1	---
Tin	ppm	ASTM D5185m	>15	<1	<1	---
Vanadium	ppm	ASTM D5185m		0	0	---
Cadmium	ppm	ASTM D5185m		0	0	---

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		7	8	---
Barium	ppm	ASTM D5185m		0	0	---
Molybdenum	ppm	ASTM D5185m		88	58	---
Manganese	ppm	ASTM D5185m		0	<1	---
Magnesium	ppm	ASTM D5185m		1335	958	---
Calcium	ppm	ASTM D5185m		1456	1106	---
Phosphorus	ppm	ASTM D5185m		1366	1041	---
Zinc	ppm	ASTM D5185m		1764	1304	---
Sulfur	ppm	ASTM D5185m		5013	3792	---

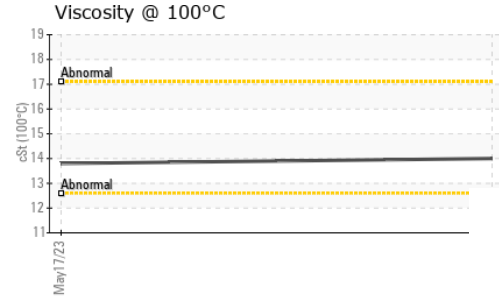
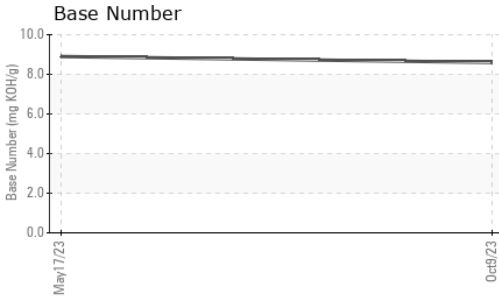
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	18	12	---
Sodium	ppm	ASTM D5185m		3	1	---
Potassium	ppm	ASTM D5185m	>20	1	<1	---

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	0.3	0.3	---
Nitration	Abs/cm	*ASTM D7624	>20	7.0	7.4	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	18.3	18.5	---

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	14.5	14.7	---
Base Number (BN)	mg KOH/g	ASTM D2896		8.6	8.9	---



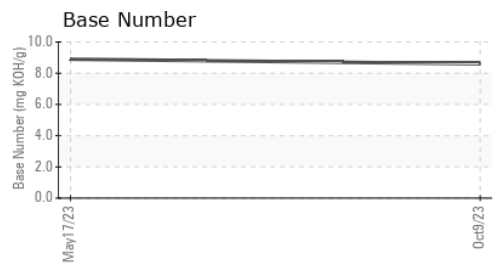
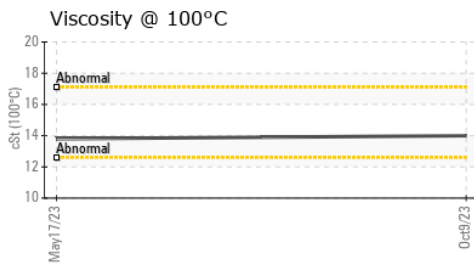
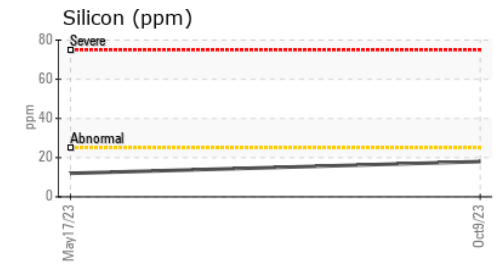
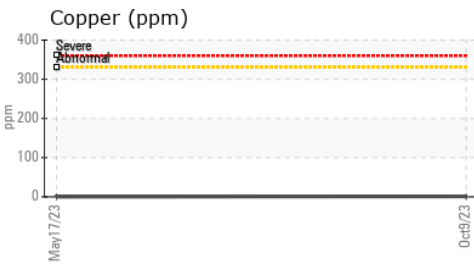
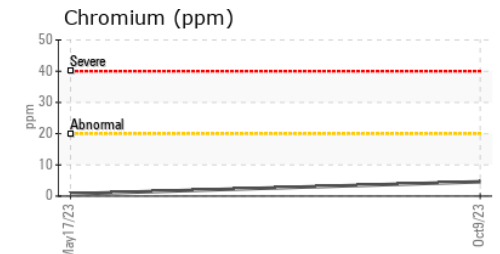
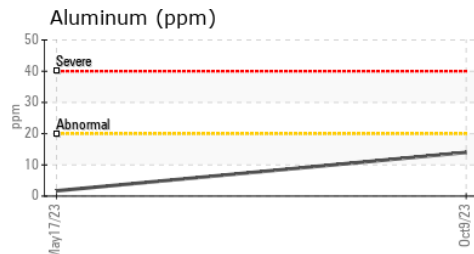
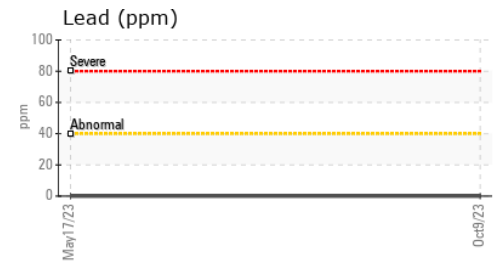
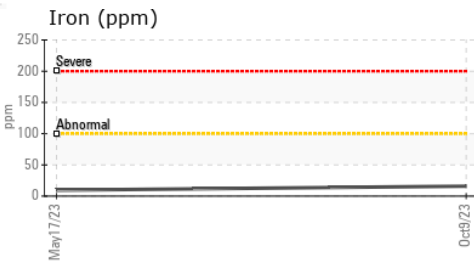
OIL ANALYSIS REPORT



VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	---
Yellow Metal	scalar	*Visual	NONE	NONE	---
Precipitate	scalar	*Visual	NONE	NONE	---
Silt	scalar	*Visual	NONE	NONE	---
Debris	scalar	*Visual	NONE	NONE	---
Sand/Dirt	scalar	*Visual	NONE	NONE	---
Appearance	scalar	*Visual	NORML	NORML	---
Odor	scalar	*Visual	NORML	NORML	---
Emulsified Water	scalar	*Visual	>0.2	NEG	---
Free Water	scalar	*Visual		NEG	---

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.0	13.8	---

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0822251 **Received** : 17 Oct 2023
Lab Number : 05981814 **Diagnosed** : 19 Oct 2023
Unique Number : 10699109 **Diagnostician** : Don Baldrige
Test Package : MOB 1 (Additional Tests: TBN)

C.L. BENTON & SONS INC
 706 38TH AVE N
 MYRTLE BEACH, SC
 US 29577
 Contact: NEIL
 neil@clbenton.com

Certificate L2367
 To discuss this sample report, contact Customer Service at 1-800-237-1369.
 * - Denotes test methods that are outside of the ISO 17025 scope of accreditation.
 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)