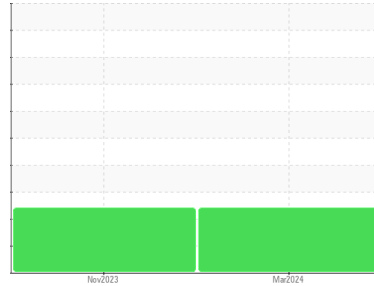


OIL ANALYSIS REPORT

Sample Rating Trend



FUEL



Machine Id
304
 Component
Diesel Engine
 Fluid
RED GIANT LOCOMOTIVE EO 20W40 (--- GAL)

DIAGNOSIS

▲ Recommendation

We advise that you check the fuel injection system. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

▲ Contamination

There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

▲ Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	PCA0092723	PCA0092756	---
Sample Date	Client Info	04 Mar 2024	28 Nov 2023	---
Machine Age	hrs	Client Info	0	0
Oil Age	hrs	Client Info	0	0
Oil Changed	Client Info	N/A	N/A	---
Sample Status		SEVERE	SEVERE	---

CONTAMINATION

method	limit/base	current	history1	history2
Water	WC Method	>0.20	NEG	NEG
Glycol	WC Method		NEG	NEG

WEAR METALS

method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m	>100	19	23
Chromium	ppm	ASTM D5185m	>15	<1	<1
Nickel	ppm	ASTM D5185m	>5	0	0
Titanium	ppm	ASTM D5185m		0	<1
Silver	ppm	ASTM D5185m	>2	0	<1
Aluminum	ppm	ASTM D5185m	>10	1	2
Lead	ppm	ASTM D5185m	>75	13	24
Copper	ppm	ASTM D5185m	>90	11	13
Tin	ppm	ASTM D5185m	>30	0	1
Vanadium	ppm	ASTM D5185m		<1	0
Cadmium	ppm	ASTM D5185m		0	<1

ADDITIVES

method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m		28	26
Barium	ppm	ASTM D5185m		0	0
Molybdenum	ppm	ASTM D5185m		39	38
Manganese	ppm	ASTM D5185m		<1	<1
Magnesium	ppm	ASTM D5185m		8	14
Calcium	ppm	ASTM D5185m		2765	2826
Phosphorus	ppm	ASTM D5185m	0	0	1
Zinc	ppm	ASTM D5185m	0	0	0
Sulfur	ppm	ASTM D5185m	1900	2782	2613

CONTAMINANTS

method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m	>17	3	4
Sodium	ppm	ASTM D5185m		10	12
Potassium	ppm	ASTM D5185m	>20	0	2
Fuel	%	ASTM D3524	>4	▲ 9.4	▲ 9.2

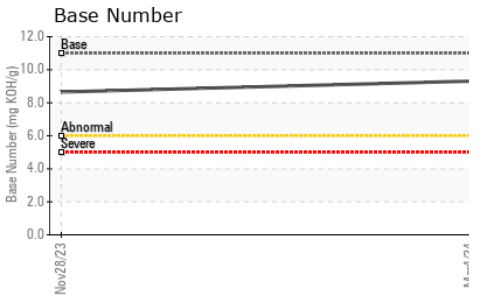
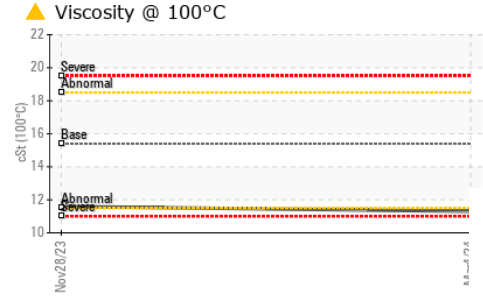
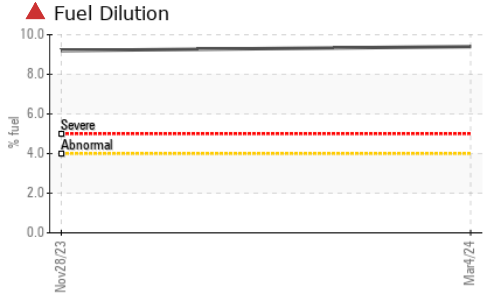
INFRA-RED

method	limit/base	current	history1	history2	
Soot %	%	*ASTM D7844	>3	0.3	0.4
Nitration	Abs/cm	*ASTM D7624	>20	7.6	8.0
Sulfation	Abs.1mm	*ASTM D7415	>30	14.1	14.7

FLUID DEGRADATION

method	limit/base	current	history1	history2	
Oxidation	Abs.1mm	*ASTM D7414	>25	6.6	6.8
Base Number (BN)	mg KOH/g	ASTM D2896	11	9.31	8.65

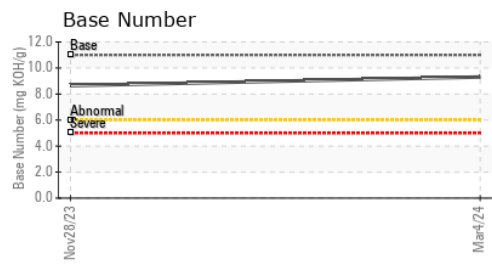
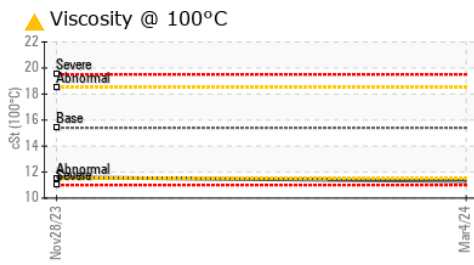
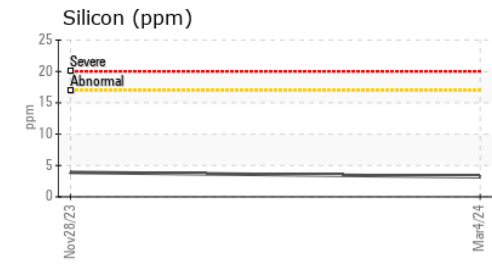
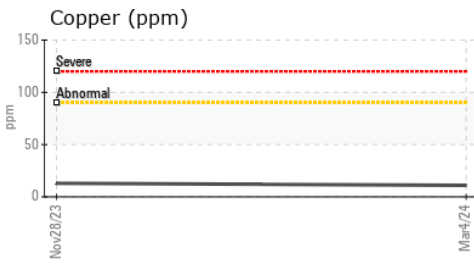
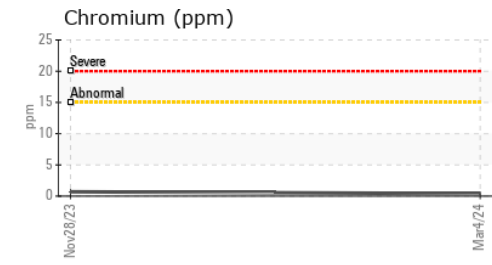
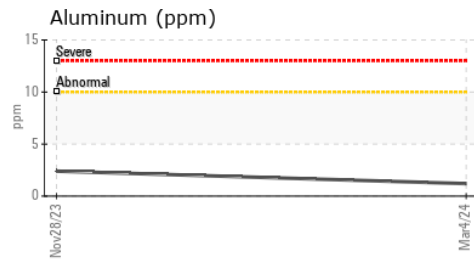
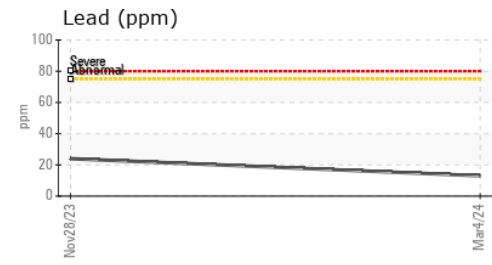
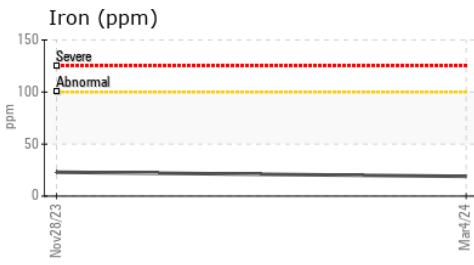
OIL ANALYSIS REPORT



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	>0.20	NEG	---
Free Water	scalar	*Visual		NEG	---

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	▲ 11.3	▲ 11.6

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0092723 **Received** : 12 Mar 2024
Lab Number : 06116048 **Tested** : 14 Mar 2024
Unique Number : 10924881 **Diagnosed** : 14 Mar 2024 - Wes Davis
Test Package : MOB 2 (Additional Tests: PercentFuel)

U.S. SUGAR CORP
 1731 S W.C. OWEN AVENUE
 CLEWISTON, FL
 US 33440-3032
 Contact: MAT RUDD
 mrudd@ussugar.com

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)