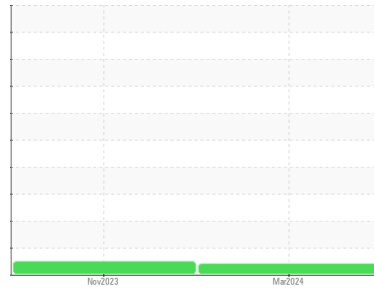




OIL ANALYSIS REPORT

Sample Rating Trend



VIS DEBRIS



Area

Action Newark

Machine Id

TUG 5600 - TUG

Component

Diesel Engine

Fluid

DIESEL ENGINE OIL SAE 40 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

Moderate concentration of visible dirt/debris present in the oil.

Fluid Condition

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

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0850653	WC0864773	---
Sample Date	Client Info		25 Mar 2024	13 Nov 2023	---
Machine Age	hrs	Client Info	4881	4764	---
Oil Age	hrs	Client Info	0	0	---
Oil Changed	Client Info		N/A	N/A	---
Sample Status			ABNORMAL	NORMAL	---

CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>5	<1.0	<1.0	---
Water	WC Method	>0.2	NEG	NEG	---
Glycol	WC Method		NEG	NEG	---

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >100	10	12	---
Chromium	ppm	ASTM D5185m >20	<1	0	---
Nickel	ppm	ASTM D5185m >4	<1	<1	---
Titanium	ppm	ASTM D5185m	<1	0	---
Silver	ppm	ASTM D5185m >3	0	0	---
Aluminum	ppm	ASTM D5185m >20	2	3	---
Lead	ppm	ASTM D5185m >40	<1	0	---
Copper	ppm	ASTM D5185m >330	1	0	---
Tin	ppm	ASTM D5185m >15	<1	0	---
Vanadium	ppm	ASTM D5185m	<1	0	---
Cadmium	ppm	ASTM D5185m	<1	0	---

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m 250	23	12	---
Barium	ppm	ASTM D5185m 10	0	0	---
Molybdenum	ppm	ASTM D5185m 100	59	58	---
Manganese	ppm	ASTM D5185m	<1	<1	---
Magnesium	ppm	ASTM D5185m 450	811	774	---
Calcium	ppm	ASTM D5185m 3000	1132	1098	---
Phosphorus	ppm	ASTM D5185m 1150	971	1003	---
Zinc	ppm	ASTM D5185m 1350	1170	1174	---
Sulfur	ppm	ASTM D5185m 4250	3226	3119	---

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >25	5	3	---
Sodium	ppm	ASTM D5185m >216	1	2	---
Potassium	ppm	ASTM D5185m >20	3	2	---

INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >3	0	0	---
Nitration	Abs/cm	*ASTM D7624 >20	6.4	8.0	---
Sulfation	Abs/.1mm	*ASTM D7415 >30	17.0	17.7	---

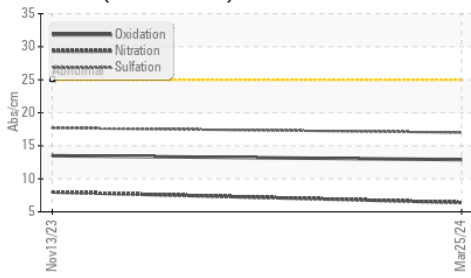
FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	12.9	13.5	---
Base Number (BN)	mg KOH/g	ASTM D2896 8.5	7.9	7.4	---

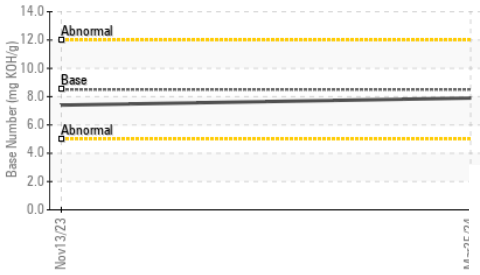


OIL ANALYSIS REPORT

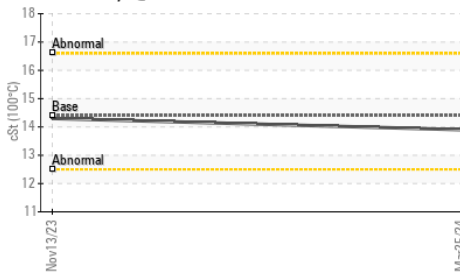
FT-IR (Direct Trend)



Base Number



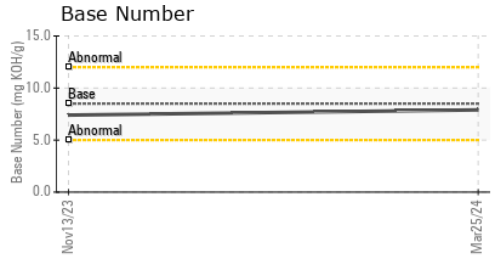
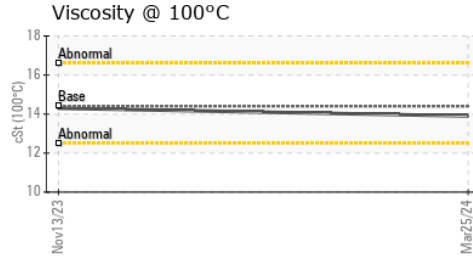
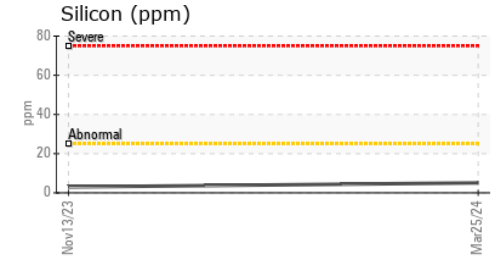
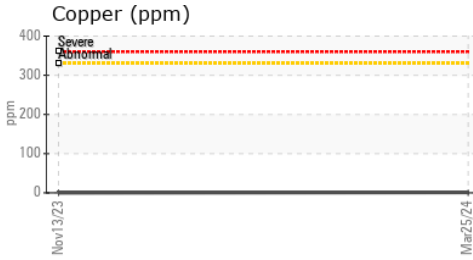
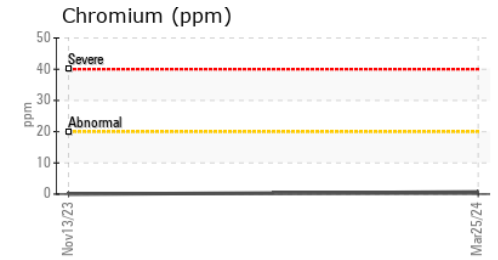
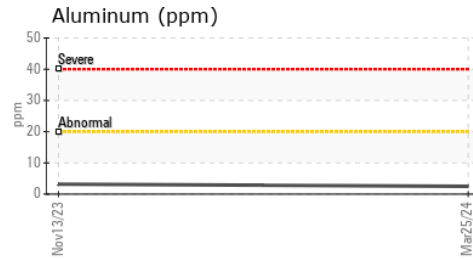
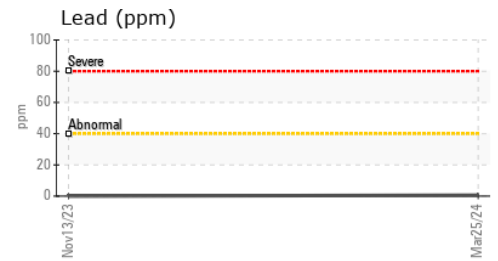
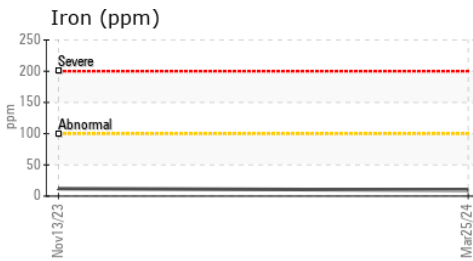
Viscosity @ 100°C



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	▲ MODER	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	14.4	13.9	14.3

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0850653 **Received** : 05 Apr 2024
Lab Number : 06139518 **Tested** : 05 Apr 2024
Unique Number : 10964326 **Diagnosed** : 06 Apr 2024 - Don Baldrige
Test Package : MOB 1 (Additional Tests: TBN)

INTERSTATE WASTE-NEWARK
 110 EVERGREEN AVE, BAY 3
 NEWARK, NJ
 US 07114
 Contact: Robert Witynski
 RWitynski@interstatewaste.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)

T:
F: