



TRAAP

Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id  
**LIEBHERR 515**  
 Component  
**Lower Diesel Engine**  
 Fluid  
**TRC MOLY XL PRO-SPEC IV 15W40 (8 GAL)**

**RECOMMENDATION**

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		TR06158491	TR05916267	---
Sample Date		Client Info		27 Sep 2023	14 Feb 2023	---
Machine Age	hrs	Client Info		4140	1000	---
Oil Age	hrs	Client Info		250	500	---
Filter Age	hrs	Client Info		250	250	---
Oil Changed		Client Info		Not Changd	Changed	---
Filter Changed		Client Info		Changed	Changed	---
Sample Status				NORMAL	NORMAL	---

**WEAR**

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	8	10	---
Chromium	ppm	ASTM D5185m	>5	1	<1	---
Nickel	ppm	ASTM D5185m	>5	<1	0	---
Titanium	ppm	ASTM D5185m		<1	<1	---
Silver	ppm	ASTM D5185m	>3	0	0	---
Aluminum	ppm	ASTM D5185m	>15	5	2	---
Lead	ppm	ASTM D5185m	>30	<1	2	---
Copper	ppm	ASTM D5185m	>125	21	81	---
Tin	ppm	ASTM D5185m	>5	1	1	---
Vanadium	ppm	ASTM D5185m		<1	<1	---
White Metal	scalar	*Visual	NONE	NONE	NONE	---
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	---

**CONTAMINATION**

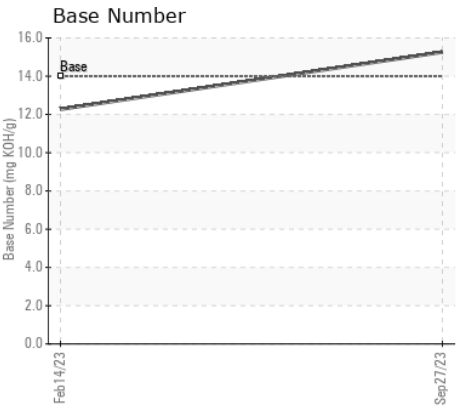
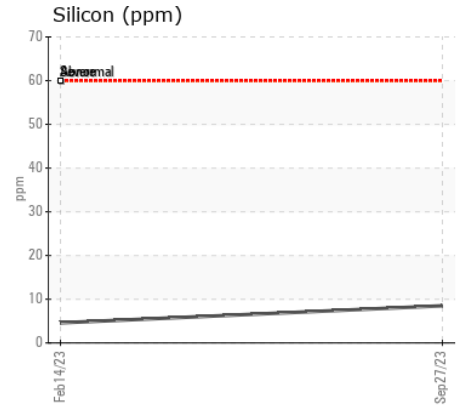
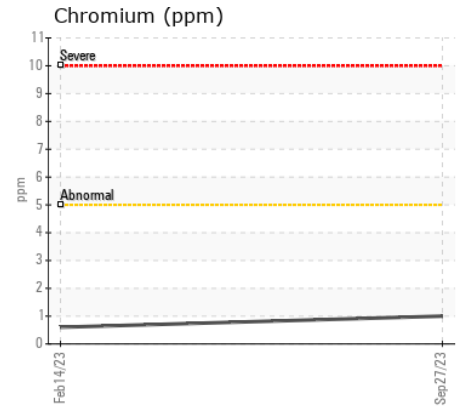
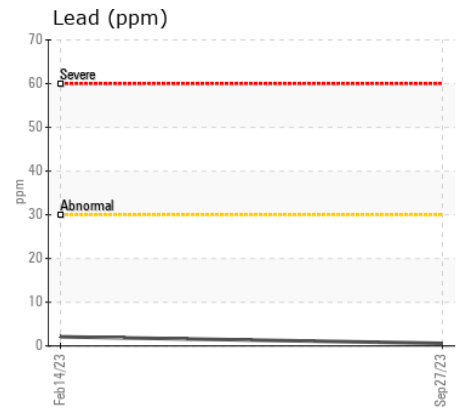
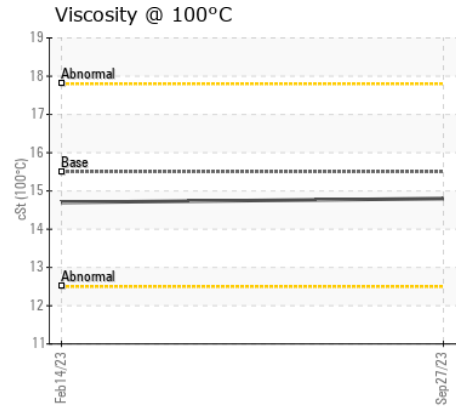
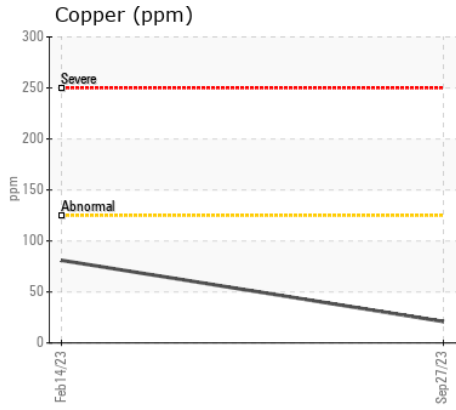
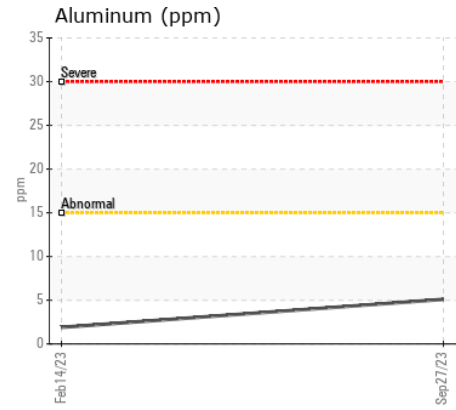
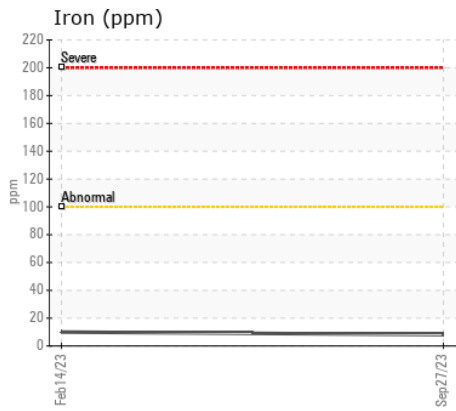
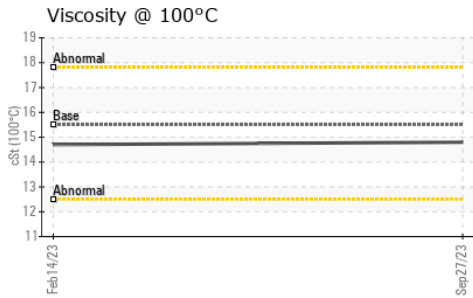
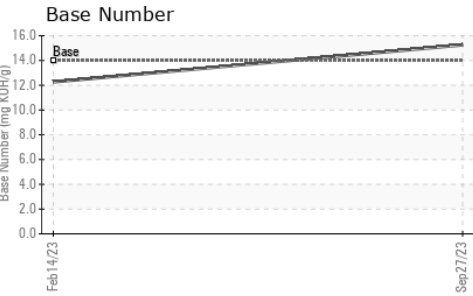
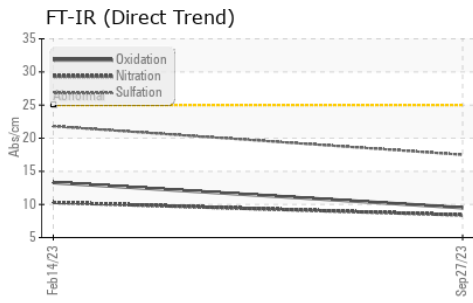
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>60	8	5	---
Potassium	ppm	ASTM D5185m	>20	3	2	---
Fuel		WC Method	>5	<1.0	<1.0	---
Water		WC Method	>0.2	NEG	NEG	---
Glycol		WC Method		NEG	NEG	---
Soot %	%	*ASTM D7844	>3	0.1	0.1	---
Nitration	Abs/cm	*ASTM D7624	>20	8.4	10.3	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	17.5	21.8	---
Silt	scalar	*Visual	NONE	NONE	NONE	---
Debris	scalar	*Visual	NONE	NONE	NONE	---
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	---
Appearance	scalar	*Visual	NORML	NORML	NORML	---
Odor	scalar	*Visual	NORML	NORML	NORML	---
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	---

**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.

Sodium	ppm	ASTM D5185m		3	3	---
Boron	ppm	ASTM D5185m		0	0	---
Barium	ppm	ASTM D5185m		<1	0	---
Molybdenum	ppm	ASTM D5185m		169	111	---
Manganese	ppm	ASTM D5185m		<1	<1	---
Magnesium	ppm	ASTM D5185m		30	83	---
Calcium	ppm	ASTM D5185m	1300	5565	3914	---
Phosphorus	ppm	ASTM D5185m		1211	829	---
Zinc	ppm	ASTM D5185m	1300	1373	1066	---
Sulfur	ppm	ASTM D5185m		5836	4399	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	9.5	13.3	---
Base Number (BN)	mg KOH/g	ASTM D2896	14	15.26	12.27	---
Visc @ 100°C	cSt	ASTM D445	15.5	14.8	14.7	---



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : TR06158491  
**Lab Number** : 06158491  
**Unique Number** : 10993914  
**Test Package** : MOB 2  
**Received** : 23 Apr 2024  
**Tested** : 24 Apr 2024  
**Diagnosed** : 25 Apr 2024 - Jonathan Hester

**DIGGING & RIGGING II**  
 10 CHRISTINA COURT  
 SPARROWS POINT, MD  
 US 21219  
 Contact: Service Manager

To discuss this sample report, contact Customer Service at 1-800-827-0711.

\* - 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)

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F: