



TRAAP

Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id  
**RAINBOW 2304**

Component  
**Diesel Engine**

Fluid  
**TRC PRO-SPEC III SYNTHETIC BLEND 15W40 (15 QTS)**

**RECOMMENDATION**

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>TR06193043</b>	TR05870474	TR05328088
Sample Date		Client Info		<b>20 May 2024</b>	02 Jun 2023	05 Aug 2021
Machine Age	hrs	Client Info		<b>7181</b>	6715	6296
Oil Age	hrs	Client Info		<b>466</b>	419	452
Filter Age	hrs	Client Info		<b>466</b>	419	452
Oil Changed		Client Info		<b>Changed</b>	Changed	Changed
Filter Changed		Client Info		<b>Changed</b>	Changed	Changed
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

**WEAR**

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>51	<b>10</b>	14	22
Chromium	ppm	ASTM D5185m	>11	<b>&lt;1</b>	<1	<1
Nickel	ppm	ASTM D5185m	>5	<b>&lt;1</b>	0	<1
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	0	<1
Silver	ppm	ASTM D5185m	>3	<b>1</b>	0	0
Aluminum	ppm	ASTM D5185m	>31	<b>2</b>	1	3
Lead	ppm	ASTM D5185m	>26	<b>2</b>	<1	12
Copper	ppm	ASTM D5185m	>26	<b>1</b>	<1	<1
Tin	ppm	ASTM D5185m	>4	<b>&lt;1</b>	<1	<1
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	0	0
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

**CONTAMINATION**

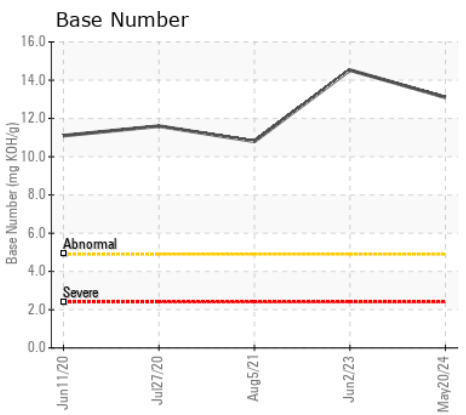
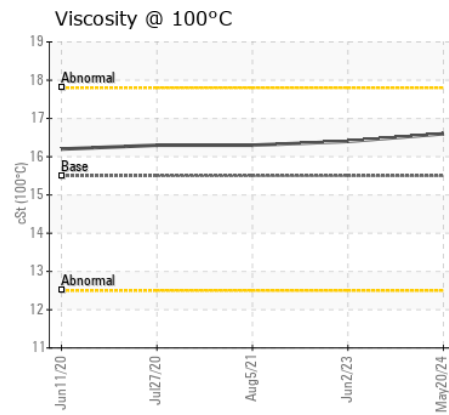
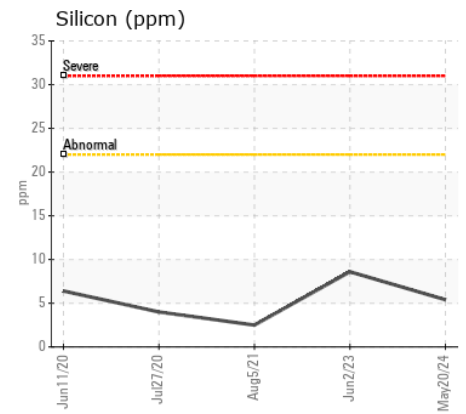
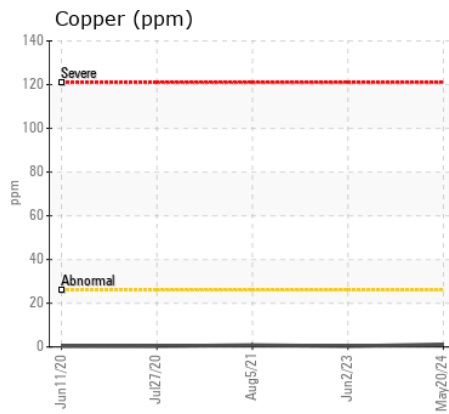
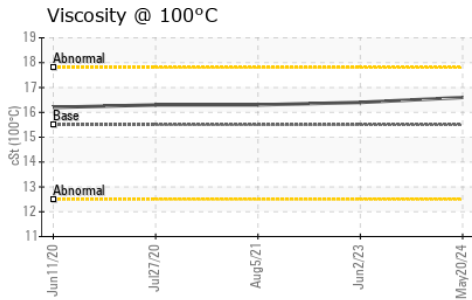
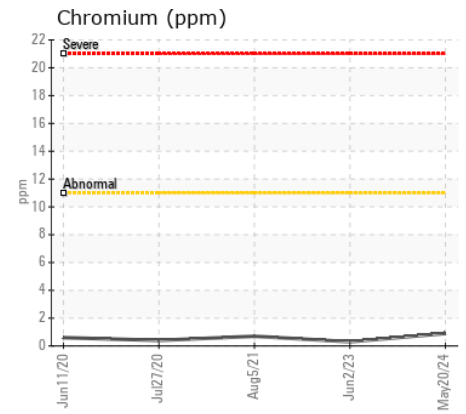
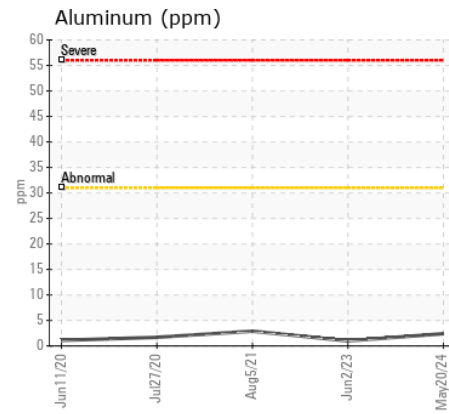
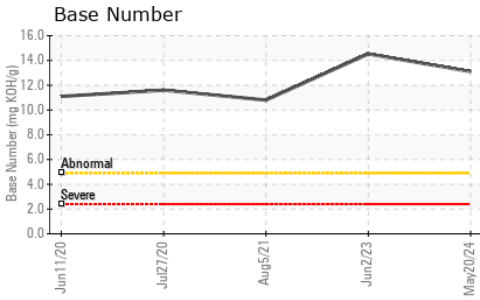
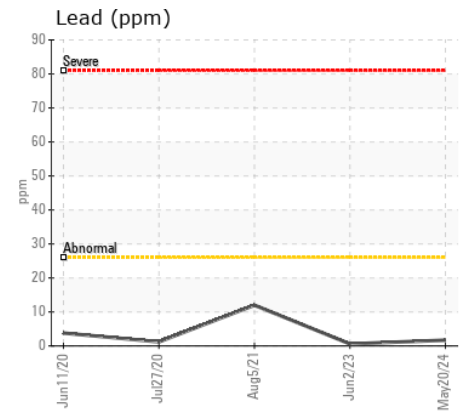
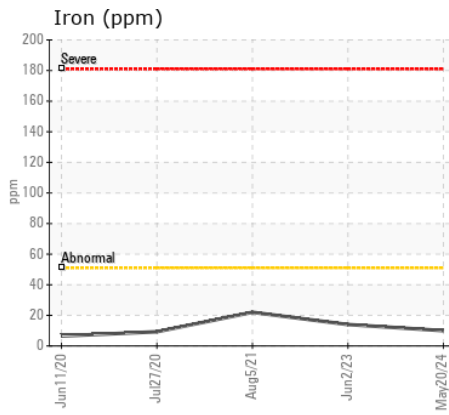
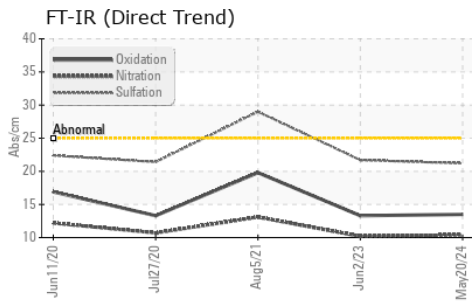
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>22	<b>5</b>	9	2
Potassium	ppm	ASTM D5185m	>20	<b>3</b>	2	2
Fuel		WC Method	>2.1	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.21	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>3	<b>0.2</b>	0.1	0
Nitration	Abs/cm	*ASTM D7624	>20	<b>10.4</b>	10.2	13.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>21.2</b>	21.7	29
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.21	<b>NEG</b>	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	>31	<b>3</b>	3	13
Boron	ppm	ASTM D5185m		<b>2</b>	0	4
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>8</b>	1	34
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m		<b>121</b>	25	116
Calcium	ppm	ASTM D5185m		<b>3678</b>	4489	4664
Phosphorus	ppm	ASTM D5185m		<b>834</b>	969	1009
Zinc	ppm	ASTM D5185m		<b>1063</b>	1210	1244
Sulfur	ppm	ASTM D5185m		<b>3827</b>	4981	3649
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>13.5</b>	13.3	19.8
Base Number (BN)	mg KOH/g	ASTM D2896		<b>13.10</b>	14.53	10.8
Visc @ 100°C	cSt	ASTM D445	15.5	<b>16.6</b>	16.4	16.3



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : TR06193043  
**Lab Number** : 06193043  
**Unique Number** : 11049795  
**Test Package** : MOB 2  
**Received** : 28 May 2024  
**Tested** : 30 May 2024  
**Diagnosed** : 30 May 2024 - Wes Davis

**CLIFTON BROS**  
 16351 COMMERCIAL PT RD  
 CIRCLEVILLE, OH  
 US 43113  
 Contact: JIM FITZGERALD

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: