



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area  
**TRUCK - URBAN**  
Machine Id  
**WESTERN STAR 144**  
Component  
**Diesel Engine**  
Fluid  
**SHELL Rotella T5 15W-40 (10 GAL)**

**RECOMMENDATION**

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>PE0004124</b>	PE0000490	PE0002434
Sample Date		Client Info		<b>13 Jun 2024</b>	21 Feb 2024	03 Nov 2023
Machine Age	hrs	Client Info		<b>4880</b>	4338	6012
Oil Age	hrs	Client Info		<b>542</b>	462	610
Filter Age	hrs	Client Info		<b>542</b>	462	610
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	>100	<b>14</b>	18	14
Chromium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	<1	<1
Nickel	ppm	ASTM D5185m	>4	<b>&lt;1</b>	0	<1
Titanium	ppm	ASTM D5185m		<b>0</b>	<1	0
Silver	ppm	ASTM D5185m	>3	<b>&lt;1</b>	0	<1
Aluminum	ppm	ASTM D5185m	>20	<b>6</b>	5	8
Lead	ppm	ASTM D5185m	>40	<b>2</b>	2	4
Copper	ppm	ASTM D5185m	>330	<b>&lt;1</b>	<1	0
Tin	ppm	ASTM D5185m	>15	<b>1</b>	<1	1
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	<1
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

**CONTAMINATION**

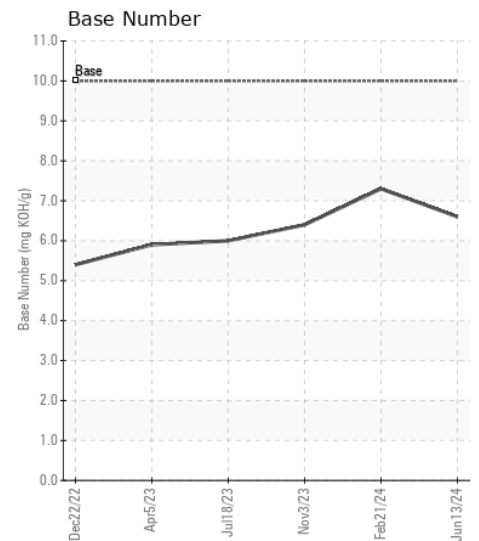
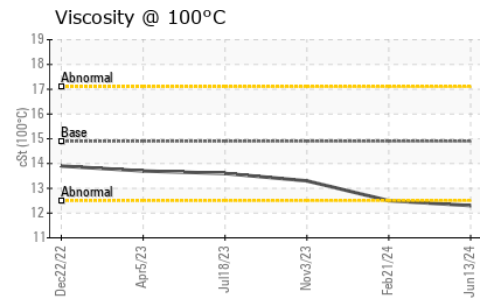
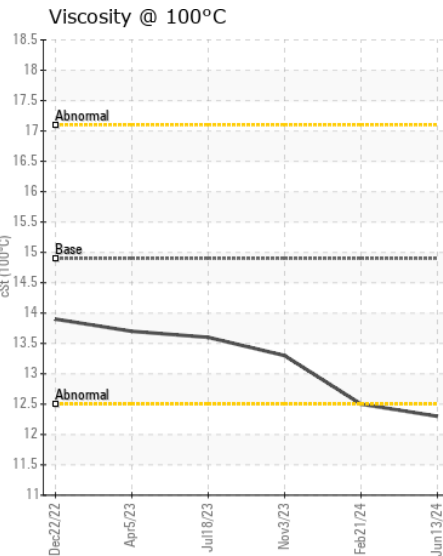
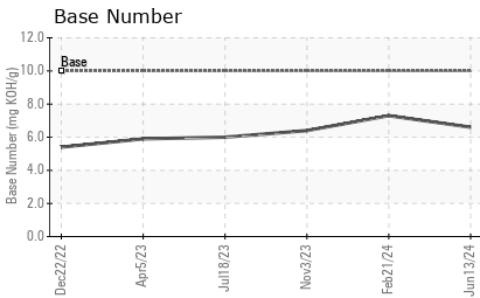
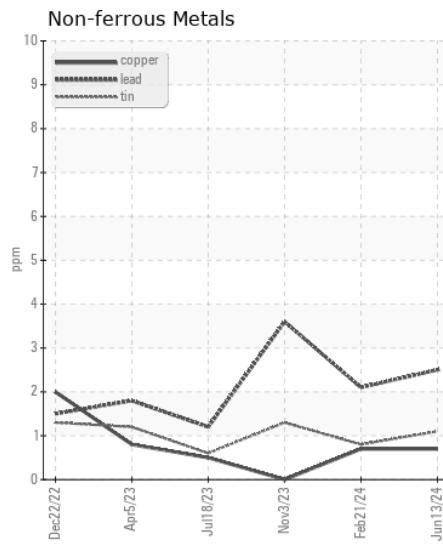
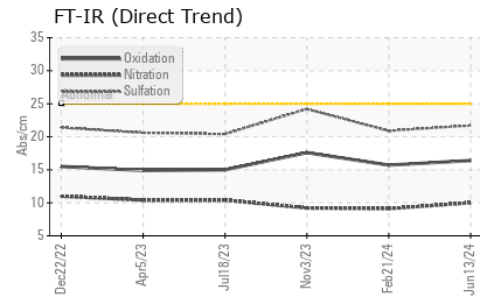
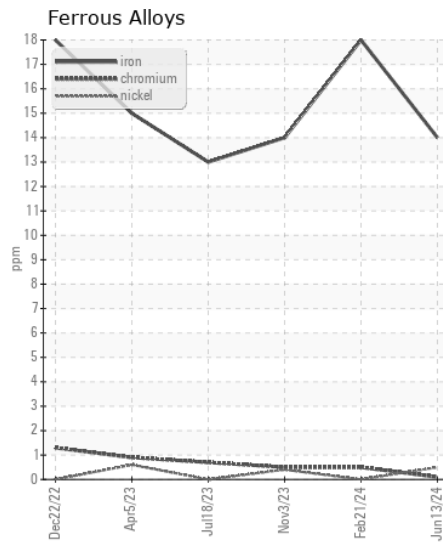
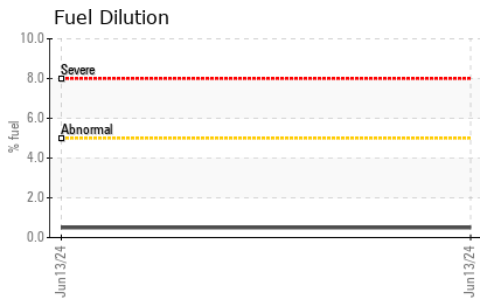
Fuel content negligible. There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	<b>7</b>	6	8
Potassium	ppm	ASTM D5185m	>20	<b>7</b>	10	11
Fuel	%	ASTM D3524	>5	<b>0.5</b>	<1.0	<1.0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>3	<b>0.7</b>	0.6	0.8
Nitration	Abs/cm	*ASTM D7624	>20	<b>10.0</b>	9.1	9.2
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>21.7</b>	20.9	24.2
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	>0.2	<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		<b>2</b>	0	<1
Boron	ppm	ASTM D5185m		<b>13</b>	29	124
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>63</b>	67	84
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m		<b>912</b>	817	352
Calcium	ppm	ASTM D5185m		<b>1345</b>	1255	1474
Phosphorus	ppm	ASTM D5185m		<b>1077</b>	1020	1062
Zinc	ppm	ASTM D5185m		<b>1348</b>	1277	1317
Sulfur	ppm	ASTM D5185m		<b>3665</b>	2977	3088
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>16.4</b>	15.7	17.6
Base Number (BN)	mg KOH/g	ASTM D2896	10	<b>6.6</b>	7.3	6.4
Visc @ 100°C	cSt	ASTM D445	14.9	<b>12.3</b>	12.5	13.3



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513

**Sample No.** : PE0004124

**Lab Number** : 06217476

**Unique Number** : 11090340

**Test Package** : CONST ( Additional Tests: FT-IR, FUELDILUTION, ICP, KV100, PercentFuel, SCREENING)

**Received** : 21 Jun 2024

**Tested** : 27 Jun 2024

**Diagnosed** : 27 Jun 2024 - Jonathan Hester

**PetroCard - Aberdeen**

110 Commerce St

Aberdeen, WA

US 98520

Contact: Sean McNealley

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T:

F:

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)