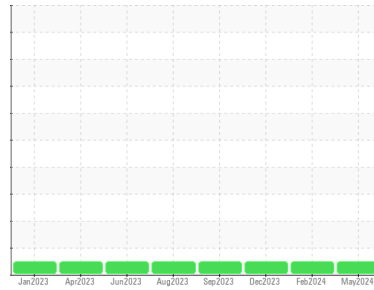




# OIL ANALYSIS REPORT

## Sample Rating Trend



**NORMAL**



Area  
**TRUCK - URBAN**  
 Machine Id  
**WESTERN STAR M141**  
 Component  
**Diesel Engine**  
 Fluid  
**SHELL Rotella T5 15W-40 (7 GAL)**

### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

#### 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.

### SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		<b>PE0004032</b>	PE0003274	PE0002380
Sample Date	Client Info		<b>23 May 2024</b>	05 Feb 2024	13 Dec 2023
Machine Age	hrs	Client Info	<b>10762</b>	9337	9190
Oil Age	hrs	Client Info	<b>1284</b>	147	972
Oil Changed	Client Info		<b>Changed</b>	Changed	Changed
Sample Status			<b>NORMAL</b>	NORMAL	NORMAL

### CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>5	<b>&lt;1.0</b>	<1.0	<1.0
Water	WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol	WC Method		<b>NEG</b>	NEG	NEG

### WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >100	<b>17</b>	6	10
Chromium	ppm	ASTM D5185m >20	<b>&lt;1</b>	<1	<1
Nickel	ppm	ASTM D5185m >4	<b>0</b>	0	0
Titanium	ppm	ASTM D5185m	<b>&lt;1</b>	0	0
Silver	ppm	ASTM D5185m >3	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m >20	<b>4</b>	5	8
Lead	ppm	ASTM D5185m >40	<b>0</b>	0	0
Copper	ppm	ASTM D5185m >330	<b>2</b>	<1	2
Tin	ppm	ASTM D5185m >15	<b>0</b>	0	0
Vanadium	ppm	ASTM D5185m	<b>&lt;1</b>	0	0
Cadmium	ppm	ASTM D5185m	<b>0</b>	0	0

### ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	<b>18</b>	29	30
Barium	ppm	ASTM D5185m	<b>0</b>	0	<1
Molybdenum	ppm	ASTM D5185m	<b>84</b>	79	86
Manganese	ppm	ASTM D5185m	<b>&lt;1</b>	0	<1
Magnesium	ppm	ASTM D5185m	<b>17</b>	16	26
Calcium	ppm	ASTM D5185m	<b>2370</b>	1994	2226
Phosphorus	ppm	ASTM D5185m	<b>1016</b>	952	1127
Zinc	ppm	ASTM D5185m	<b>1228</b>	1149	1282
Sulfur	ppm	ASTM D5185m	<b>3971</b>	3363	3636

### CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >25	<b>4</b>	2	4
Sodium	ppm	ASTM D5185m	<b>8</b>	2	9
Potassium	ppm	ASTM D5185m >20	<b>4</b>	8	15

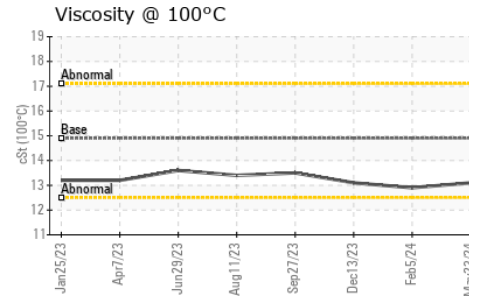
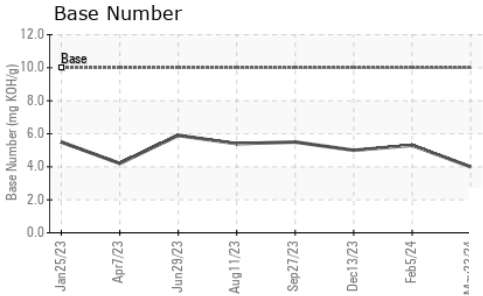
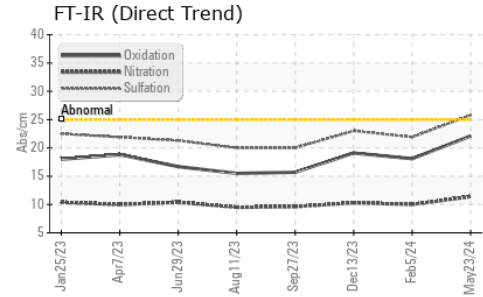
### INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >3	<b>0.4</b>	0.3	0.4
Nitration	Abs/cm	*ASTM D7624 >20	<b>11.4</b>	10.0	10.3
Sulfation	Abs/.1mm	*ASTM D7415 >30	<b>25.8</b>	21.9	23.0

### FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	<b>22.1</b>	18.1	19.1
Base Number (BN)	mg KOH/g	ASTM D2896 10	<b>4.0</b>	5.3	5.0

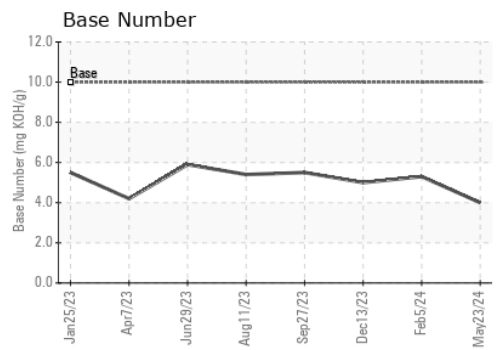
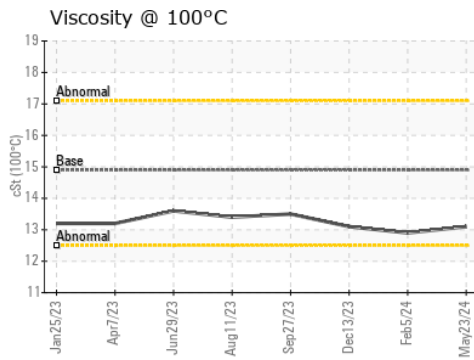
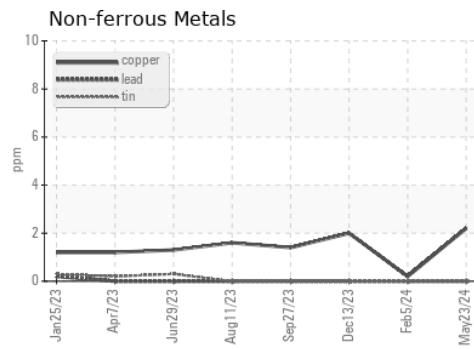
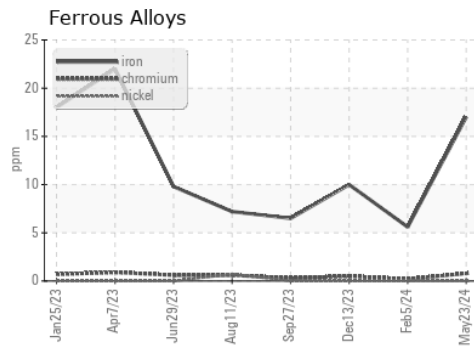
# OIL ANALYSIS REPORT



VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
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
Free Water	scalar	*Visual		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.9	13.1	12.9

## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : PE0004032      **Received** : 14 Jun 2024  
**Lab Number** : **06211094**      **Tested** : 18 Jun 2024  
**Unique Number** : 11083958      **Diagnosed** : 18 Jun 2024 - Angela Borella  
**Test Package** : CONST ( Additional Tests: FT-IR, ICP, KV100, SCREEN, TBN )

**PetroCard - Aberdeen**  
 110 Commerce St  
 Aberdeen, WA  
 US 98520  
 Contact: Sean McNealley  
 smcnealley@petrocard.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)