



# OIL ANALYSIS REPORT

|                 |                 |
|-----------------|-----------------|
| WEAR            | <b>NORMAL</b>   |
| CONTAMINATION   | <b>MARGINAL</b> |
| FLUID CONDITION | <b>NORMAL</b>   |

Machine Id  
**FREIGHTLINER 10**  
Component  
**Diesel Engine**  
Fluid  
**DIESEL ENGINE OIL SAE 15W40 (18 QTS)**

## RECOMMENDATION

No corrective action is recommended at this time. Resample at the next service interval to monitor.

| Test           | UOM | Method      | Limit/Abn | Current            | History1    | History2    |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number  |     | Client Info |           | <b>WC0906207</b>   | WC0743143   | WC0697217   |
| Sample Date    |     | Client Info |           | <b>07 Mar 2024</b> | 19 Oct 2022 | 19 May 2022 |
| Machine Age    | mls | Client Info |           | <b>249104</b>      | 219289      | 214371      |
| Oil Age        | mls | Client Info |           | <b>0</b>           | 0           | 0           |
| Filter Age     | mls | Client Info |           | <b>0</b>           | 0           | 0           |
| Oil Changed    |     | Client Info |           | <b>Not Changd</b>  | Not Changd  | Not Changd  |
| Filter Changed |     | Client Info |           | <b>Not Changd</b>  | Not Changd  | Not Changd  |
| Sample Status  |     |             |           | <b>MARGINAL</b>    | SEVERE      | NORMAL      |

## WEAR

All component wear rates are normal.

|              |        |             |      |              |      |      |
|--------------|--------|-------------|------|--------------|------|------|
| Iron         | ppm    | ASTM D5185m | >90  | <b>34</b>    | 28   | 11   |
| Chromium     | ppm    | ASTM D5185m | >20  | <b>2</b>     | <1   | <1   |
| Nickel       | ppm    | ASTM D5185m | >2   | <b>&lt;1</b> | 0    | 0    |
| Titanium     | ppm    | ASTM D5185m | >2   | <b>&lt;1</b> | <1   | 0    |
| Silver       | ppm    | ASTM D5185m | >2   | <b>&lt;1</b> | 0    | 0    |
| Aluminum     | ppm    | ASTM D5185m | >20  | <b>4</b>     | 7    | 2    |
| Lead         | ppm    | ASTM D5185m | >40  | <b>1</b>     | <1   | 0    |
| Copper       | ppm    | ASTM D5185m | >330 | <b>7</b>     | 2    | <1   |
| Tin          | ppm    | ASTM D5185m | >15  | <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

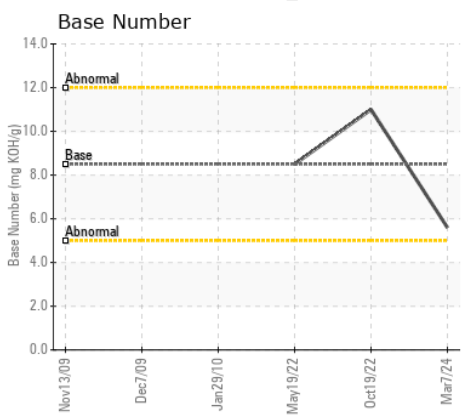
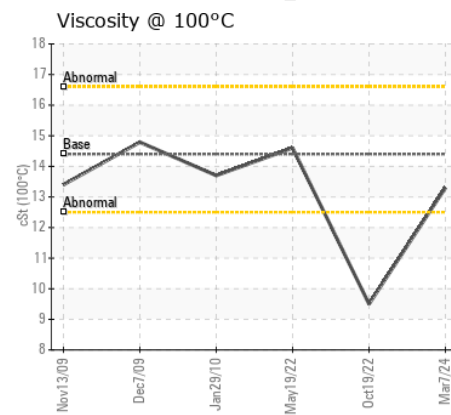
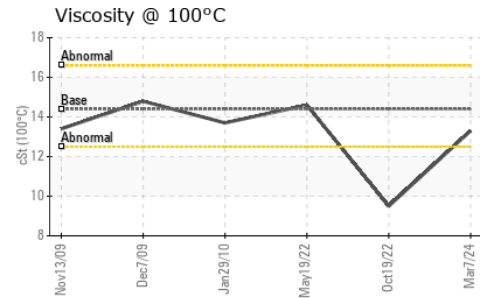
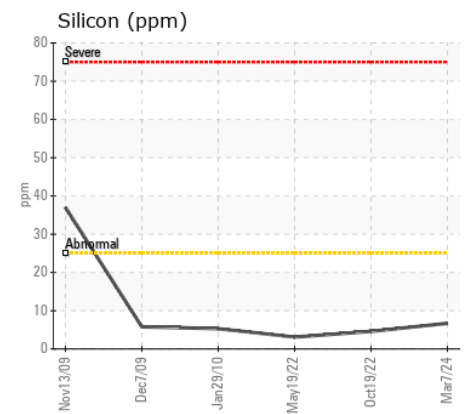
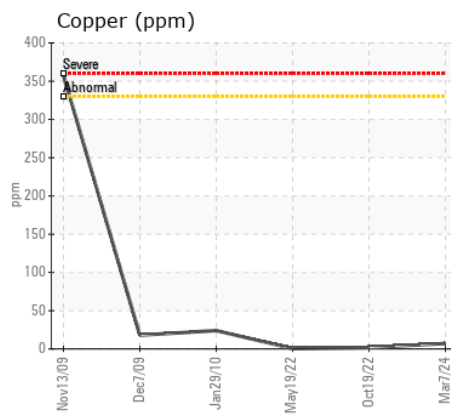
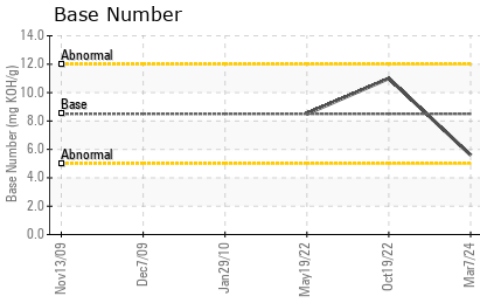
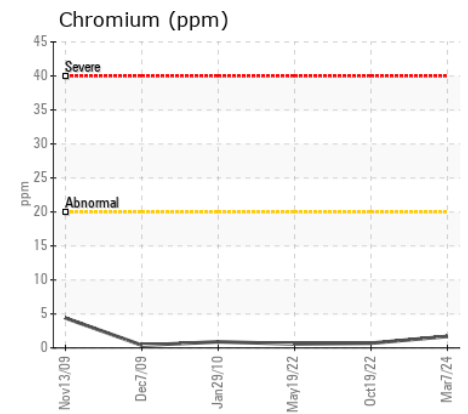
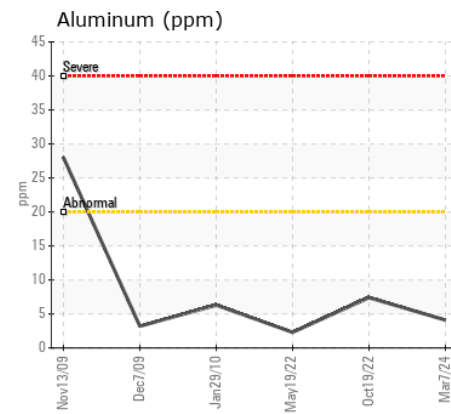
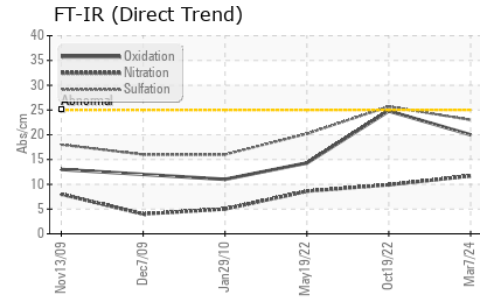
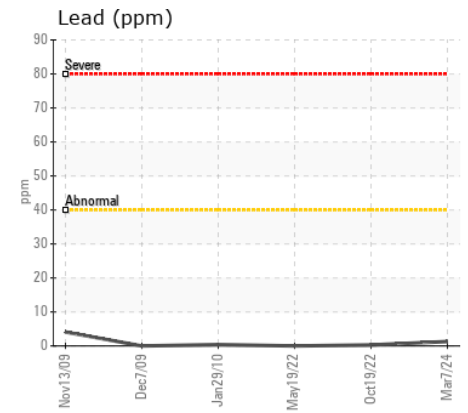
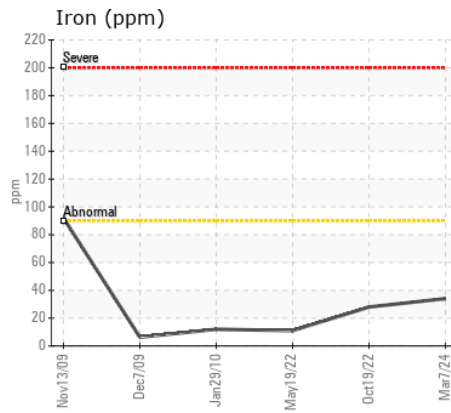
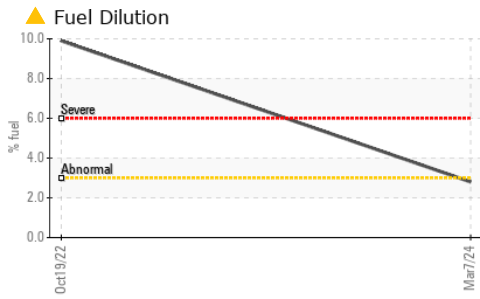
Light fuel dilution occurring. No other contaminants were detected in the oil.

|                  |          |             |       |              |       |       |
|------------------|----------|-------------|-------|--------------|-------|-------|
| Silicon          | ppm      | ASTM D5185m | >25   | <b>7</b>     | 5     | 3     |
| Potassium        | ppm      | ASTM D5185m | >20   | <b>3</b>     | 11    | 7     |
| Fuel             | %        | ASTM D3524  | >3.0  | <b>▲ 2.8</b> | ▲ 9.9 | <1.0  |
| Water            |          | WC Method   | >0.2  | <b>NEG</b>   | NEG   | NEG   |
| Glycol           |          | WC Method   |       | <b>NEG</b>   | NEG   | NEG   |
| Soot %           | %        | *ASTM D7844 | >6    | <b>0.6</b>   | 0.4   | 0.5   |
| Nitration        | Abs/cm   | *ASTM D7624 | >20   | <b>11.7</b>  | 9.9   | 8.6   |
| Sulfation        | Abs/.1mm | *ASTM D7415 | >30   | <b>23.0</b>  | 25.7  | 20.2  |
| 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 | >158 | <b>3</b>     | 3     | 15   |
| Boron            | ppm      | ASTM D5185m | 250  | <b>16</b>    | 8     | 24   |
| Barium           | ppm      | ASTM D5185m | 10   | <b>0</b>     | 0     | 0    |
| Molybdenum       | ppm      | ASTM D5185m | 100  | <b>78</b>    | 56    | 53   |
| Manganese        | ppm      | ASTM D5185m |      | <b>&lt;1</b> | <1    | <1   |
| Magnesium        | ppm      | ASTM D5185m | 450  | <b>268</b>   | 220   | 164  |
| Calcium          | ppm      | ASTM D5185m | 3000 | <b>1856</b>  | 1731  | 2106 |
| Phosphorus       | ppm      | ASTM D5185m | 1150 | <b>953</b>   | 885   | 1001 |
| Zinc             | ppm      | ASTM D5185m | 1350 | <b>1186</b>  | 1064  | 1232 |
| Sulfur           | ppm      | ASTM D5185m | 4250 | <b>3433</b>  | 3762  | 3218 |
| Oxidation        | Abs/.1mm | *ASTM D7414 | >25  | <b>20.0</b>  | 24.8  | 14.3 |
| Base Number (BN) | mg KOH/g | ASTM D2896  | 8.5  | <b>5.6</b>   | 11.0  | 8.5  |
| Visc @ 100°C     | cSt      | ASTM D445   | 14.4 | <b>13.3</b>  | ▲ 9.5 | 14.6 |



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC0906207 **Received** : 23 May 2024  
**Lab Number** : 06188990 **Tested** : 28 May 2024  
**Unique Number** : 11045742 **Diagnosed** : 28 May 2024 - Wes Davis  
**Test Package** : MOB 1 ( Additional Tests: PercentFuel, TBN )

**WAKE COUNTY PUBLIC SCHOOL SYSTEM**  
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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)