



# OIL ANALYSIS REPORT

|                 |        |
|-----------------|--------|
| WEAR            | NORMAL |
| CONTAMINATION   | NORMAL |
| FLUID CONDITION | NORMAL |



Area  
**DE Samples - CAT LAB**  
Machine Id  
**CATERPILLAR 980K LOADER 6775 (S/N W7K01443)**  
Component  
**Diesel Engine**  
Fluid  
**TULCO LUBSOIL DIESEL TURBO CJ4 15W40 (--- GAL)**

## RECOMMENDATION

Resample at the next service interval to monitor.

| Test           | UOM | Method      | Limit/Abn | Current            | History1    | History2    |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number  |     | Client Info |           | <b>TO10003607</b>  | TO10003401  | TO10003312  |
| Sample Date    |     | Client Info |           | <b>08 Jun 2024</b> | 04 May 2024 | 08 Apr 2024 |
| Machine Age    | hrs | Client Info |           | <b>28759</b>       | 28486       | 28278       |
| Oil Age        | hrs | Client Info |           | <b>1275</b>        | 502         | 294         |
| Filter Age     | hrs | Client Info |           | <b>1275</b>        | 502         | 294         |
| Oil Changed    |     | Client Info |           | <b>Not Changd</b>  | Changed     | Not Changd  |
| Filter Changed |     | Client Info |           | <b>None</b>        | Changed     | Not Changd  |
| Sample Status  |     |             |           | <b>NORMAL</b>      | NORMAL      | NORMAL      |

## WEAR

All component wear rates are normal.

|              |        |             |      |              |      |      |
|--------------|--------|-------------|------|--------------|------|------|
| Iron         | ppm    | ASTM D5185m | >100 | <b>20</b>    | 18   | 9    |
| Chromium     | ppm    | ASTM D5185m | >20  | <b>&lt;1</b> | <1   | <1   |
| Nickel       | ppm    | ASTM D5185m | >2   | <b>0</b>     | 0    | 0    |
| Titanium     | ppm    | ASTM D5185m | >2   | <b>0</b>     | 0    | 0    |
| Silver       | ppm    | ASTM D5185m | >2   | <b>0</b>     | 0    | 0    |
| Aluminum     | ppm    | ASTM D5185m | >25  | <b>&lt;1</b> | <1   | <1   |
| Lead         | ppm    | ASTM D5185m | >40  | <b>0</b>     | 1    | 0    |
| Copper       | ppm    | ASTM D5185m | >330 | <b>4</b>     | 3    | 3    |
| Tin          | ppm    | ASTM D5185m | >15  | <b>0</b>     | <1   | <1   |
| Vanadium     | ppm    | ASTM D5185m |      | <b>0</b>     | 0    | 0    |
| White Metal  | scalar | *Visual     | NONE | <b>LIGHT</b> | NONE | NONE |
| Yellow Metal | scalar | *Visual     | NONE | <b>NONE</b>  | NONE | NONE |

## CONTAMINATION

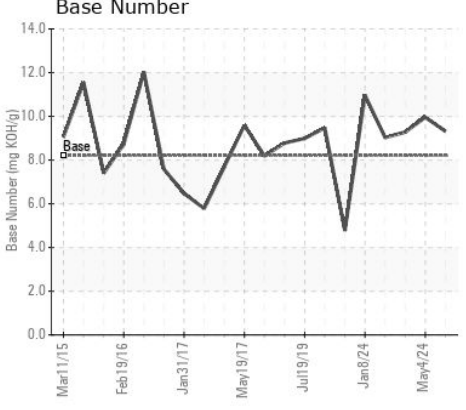
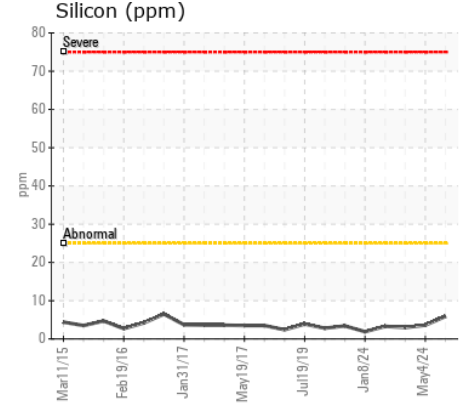
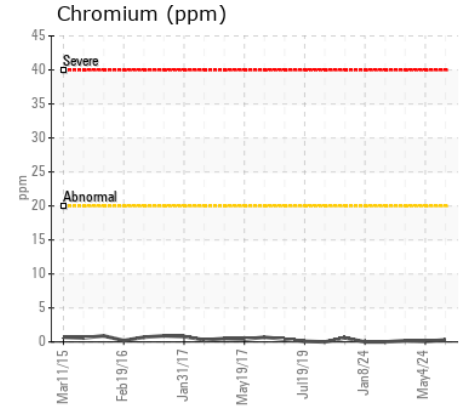
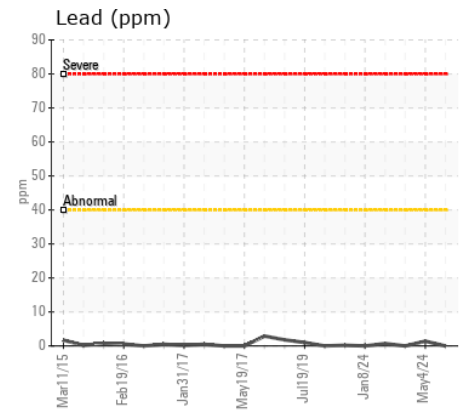
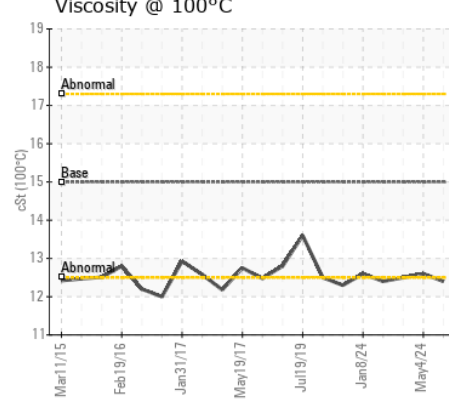
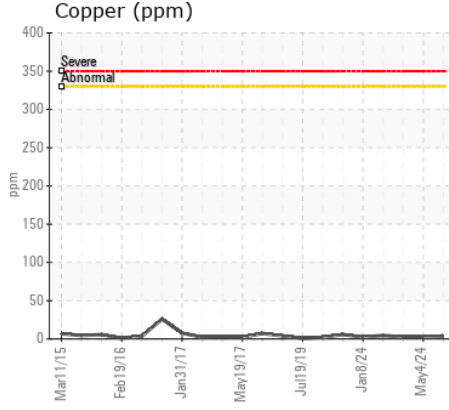
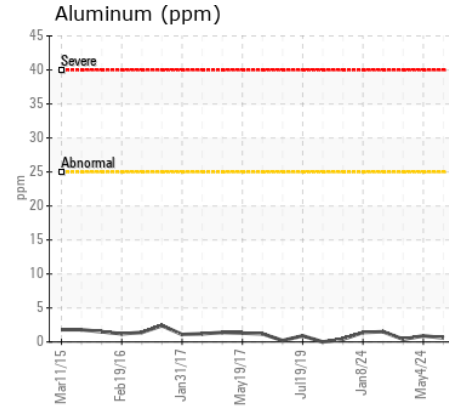
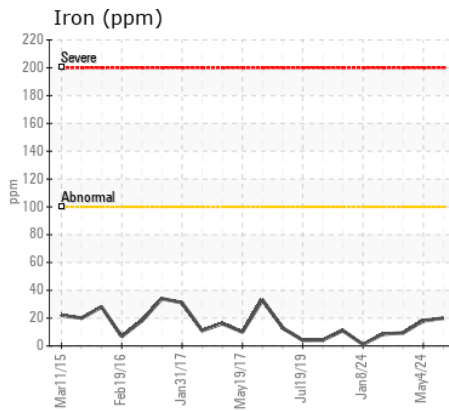
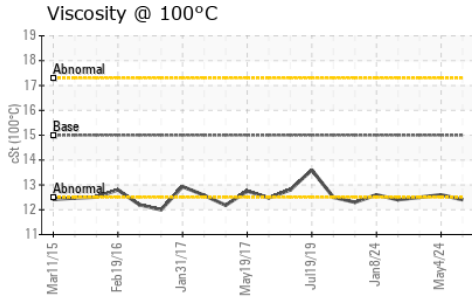
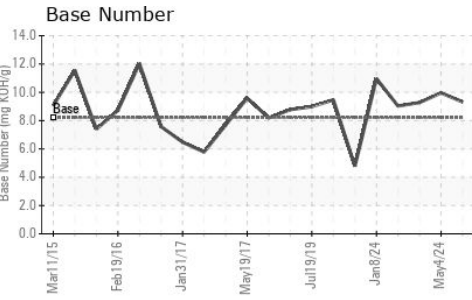
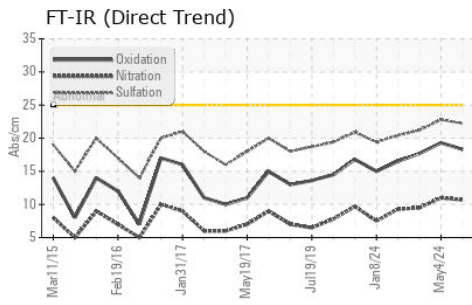
There is no indication of any contamination in the oil.

|                  |          |             |       |                |       |       |
|------------------|----------|-------------|-------|----------------|-------|-------|
| Silicon          | ppm      | ASTM D5185m | >25   | <b>6</b>       | 4     | 3     |
| Potassium        | ppm      | ASTM D5185m | >20   | <b>0</b>       | 0     | <1    |
| 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   |
| Soot %           | %        | *ASTM D7844 | >3    | <b>0.9</b>     | 0.8   | 0.6   |
| Nitration        | Abs/cm   | *ASTM D7624 | >20   | <b>10.7</b>    | 11.0  | 9.5   |
| Sulfation        | Abs/.1mm | *ASTM D7415 | >30   | <b>22.2</b>    | 22.8  | 21.2  |
| 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>13</b>    | 15   | 11   |
| Boron                | ppm      | ASTM D5185m | 1    | <b>&lt;1</b> | 5    | 4    |
| Barium               | ppm      | ASTM D5185m |      | <b>0</b>     | <1   | 0    |
| Molybdenum           | ppm      | ASTM D5185m | 40   | <b>55</b>    | 58   | 54   |
| Manganese            | ppm      | ASTM D5185m |      | <b>0</b>     | <1   | 0    |
| Magnesium            | ppm      | ASTM D5185m | 935  | <b>960</b>   | 907  | 881  |
| Calcium              | ppm      | ASTM D5185m | 1234 | <b>1552</b>  | 1355 | 1248 |
| Phosphorus           | ppm      | ASTM D5185m | 1089 | <b>1109</b>  | 1117 | 1016 |
| Zinc                 | ppm      | ASTM D5185m | 1090 | <b>1379</b>  | 1325 | 1178 |
| Sulfur               | ppm      | ASTM D5185m | 3700 | <b>4279</b>  | 4044 | 3998 |
| Oxidation            | Abs/.1mm | *ASTM D7414 | >25  | <b>18.3</b>  | 19.3 | 17.7 |
| Base Number (BN)     | mg KOH/g | ASTM D2896  | 8.21 | <b>9.32</b>  | 9.96 | 9.28 |
| Visc @ 100°C         | cSt      | ASTM D445   | 15   | <b>12.4</b>  | 12.6 | 12.5 |
| Viscosity Index (VI) | Scale    | ASTM D2270  | 143  | <b>129</b>   | 133  | 132  |



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : TO10003607  
**Lab Number** : 06213660  
**Unique Number** : 11086524  
**Test Package** : MOB 2 ( Additional Tests: VI )

**Received** : 18 Jun 2024  
**Tested** : 20 Jun 2024  
**Diagnosed** : 20 Jun 2024 - Wes Davis

**ANCHOR STONE TULSA ROCK**  
 TULSA ROCK QUARRY, 66TH ST N 145TH AVENUE  
 TULSA, OK  
 US 74137

Contact: DAVID MORRIS  
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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)

T:  
 F: