



# OIL ANALYSIS REPORT

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



Area  
**RMR-Louisville**  
Machine Id  
**1217-99540 LIEBHERR LH60M 1217-99540**  
Component  
**Hydraulic System**  
Fluid  
**MV 46 (--- GAL)**

## RECOMMENDATION

Resample at the next service interval to monitor.

| Test           | UOM | Method      | Limit/Abn | Current            | History1    | History2    |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number  |     | Client Info |           | <b>DJJ0015451</b>  | DJJ0018003  | DJJ0011447  |
| Sample Date    |     | Client Info |           | <b>15 Apr 2024</b> | 08 Mar 2023 | 04 Jan 2022 |
| Machine Age    | hrs | Client Info |           | <b>11784</b>       | 10844       | 8552        |
| Oil Age        | hrs | Client Info |           | <b>0</b>           | 0           | 0           |
| Filter Age     | hrs | Client Info |           | <b>0</b>           | 0           | 0           |
| Oil Changed    |     | Client Info |           | <b>Not Changed</b> | Not Changed | Not Changed |
| Filter Changed |     | Client Info |           | <b>Changed</b>     | Not Changed | Changed     |
| Sample Status  |     |             |           | <b>NORMAL</b>      | NORMAL      | NORMAL      |

## WEAR

All component wear rates are normal.

|              |        |             |      |              |      |      |
|--------------|--------|-------------|------|--------------|------|------|
| Iron         | ppm    | ASTM D5185m | >60  | <b>4</b>     | 9    | 8    |
| Chromium     | ppm    | ASTM D5185m | >40  | <b>&lt;1</b> | 1    | 1    |
| Nickel       | ppm    | ASTM D5185m | >10  | <b>0</b>     | <1   | 0    |
| Titanium     | ppm    | ASTM D5185m |      | <b>0</b>     | <1   | <1   |
| Silver       | ppm    | ASTM D5185m |      | <b>0</b>     | 0    | 0    |
| Aluminum     | ppm    | ASTM D5185m | >5   | <b>0</b>     | 2    | 1    |
| Lead         | ppm    | ASTM D5185m | >5   | <b>0</b>     | 0    | <1   |
| Copper       | ppm    | ASTM D5185m | >15  | <b>2</b>     | 3    | 2    |
| Tin          | ppm    | ASTM D5185m | >5   | <b>&lt;1</b> | <1   | 0    |
| Vanadium     | ppm    | ASTM D5185m |      | <b>0</b>     | 0    | 0    |
| White Metal  | scalar | *Visual     | NONE | <b>NONE</b>  | NONE | NONE |
| Yellow Metal | scalar | *Visual     | NONE | <b>NONE</b>  | NONE | NONE |

## CONTAMINATION

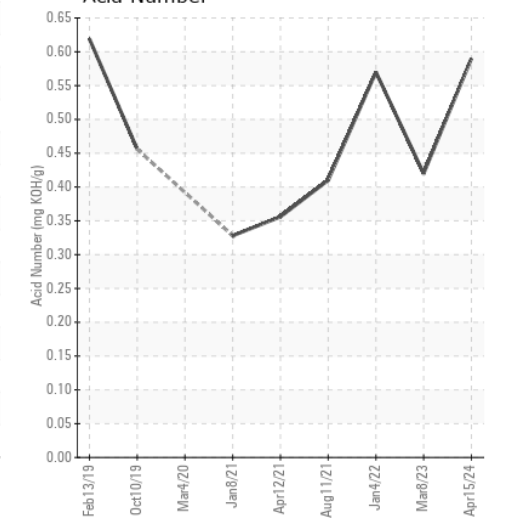
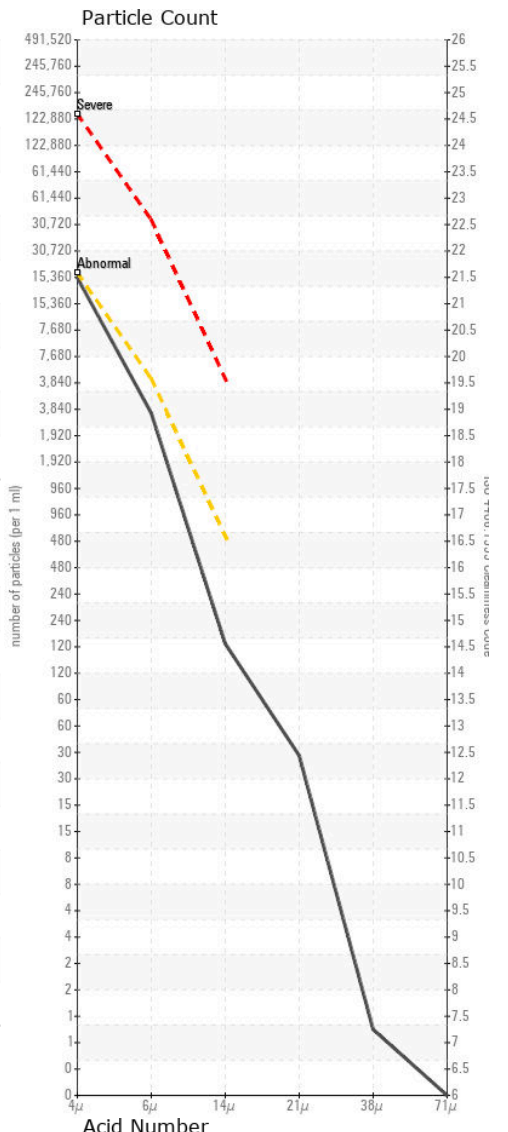
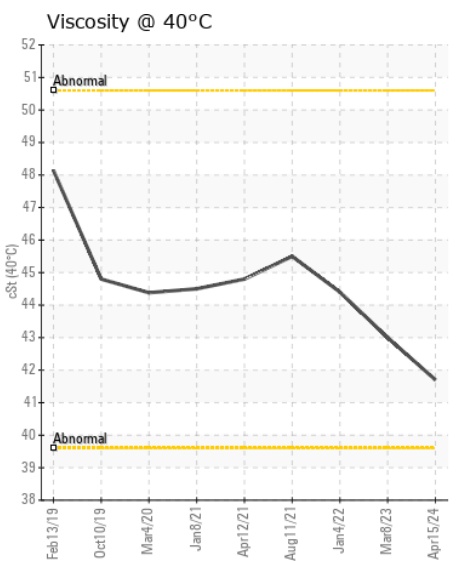
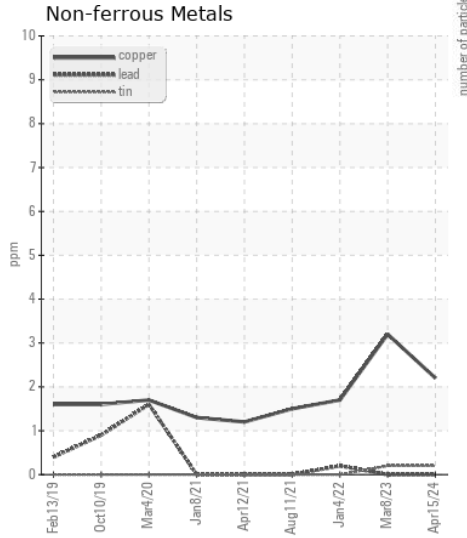
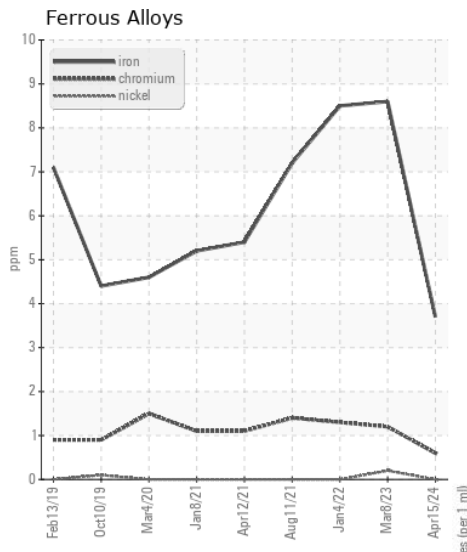
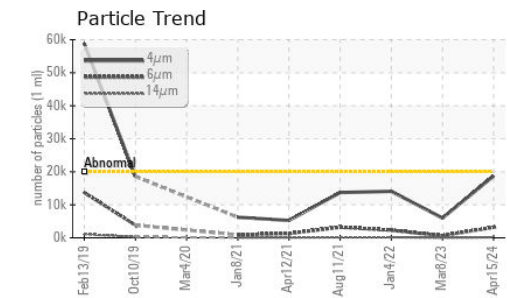
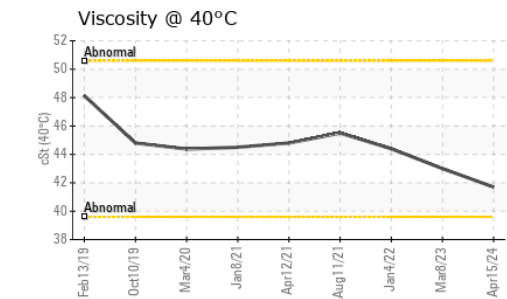
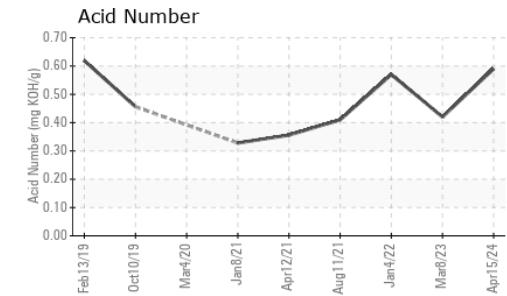
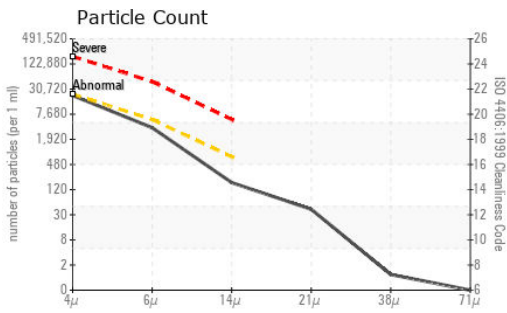
The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable.

|                  |        |              |           |                 |          |          |
|------------------|--------|--------------|-----------|-----------------|----------|----------|
| Silicon          | ppm    | ASTM D5185m  | >15       | <b>2</b>        | 3        | 4        |
| Potassium        | ppm    | ASTM D5185m  | >20       | <b>6</b>        | 2        | 1        |
| Water            |        | WC Method    | >0.1      | <b>NEG</b>      | NEG      | NEG      |
| Particles >4µm   |        | ASTM D7647   | >20000    | <b>18745</b>    | 5988     | 14087    |
| Particles >6µm   |        | ASTM D7647   | >5000     | <b>3182</b>     | 643      | 2303     |
| Particles >14µm  |        | ASTM D7647   | >640      | <b>156</b>      | 25       | 167      |
| Particles >21µm  |        | ASTM D7647   | >160      | <b>36</b>       | 3        | 54       |
| Particles >38µm  |        | ASTM D7647   | >40       | <b>1</b>        | 0        | 11       |
| Particles >71µm  |        | ASTM D7647   | >10       | <b>0</b>        | 0        | 2        |
| Oil Cleanliness  |        | ISO 4406 (c) | >21/19/16 | <b>21/19/14</b> | 20/17/12 | 21/18/15 |
| Silt             | scalar | *Visual      | NONE      | <b>NONE</b>     | NONE     | NONE     |
| Debris           | scalar | *Visual      | NONE      | <b>NONE</b>     | NONE     | LIGHT    |
| 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      | >0.1      | <b>NEG</b>      | NEG      | NEG      |

## FLUID CONDITION

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

|                  |          |             |  |              |      |      |
|------------------|----------|-------------|--|--------------|------|------|
| Sodium           | ppm      | ASTM D5185m |  | <b>4</b>     | 1    | 1    |
| Boron            | ppm      | ASTM D5185m |  | <b>34</b>    | 30   | 29   |
| Barium           | ppm      | ASTM D5185m |  | <b>0</b>     | 0    | 2    |
| Molybdenum       | ppm      | ASTM D5185m |  | <b>17</b>    | 13   | 13   |
| Manganese        | ppm      | ASTM D5185m |  | <b>&lt;1</b> | <1   | <1   |
| Magnesium        | ppm      | ASTM D5185m |  | <b>77</b>    | 118  | 98   |
| Calcium          | ppm      | ASTM D5185m |  | <b>341</b>   | 472  | 330  |
| Phosphorus       | ppm      | ASTM D5185m |  | <b>408</b>   | 415  | 396  |
| Zinc             | ppm      | ASTM D5185m |  | <b>417</b>   | 469  | 464  |
| Sulfur           | ppm      | ASTM D5185m |  | <b>1899</b>  | 2025 | 1868 |
| Acid Number (AN) | mg KOH/g | ASTM D8045  |  | <b>0.59</b>  | 0.42 | 0.57 |
| Visc @ 40°C      | cSt      | ASTM D445   |  | <b>41.7</b>  | 43.0 | 44.4 |



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : DJJ0015451 **Received** : 19 Apr 2024  
**Lab Number** : 06154294 **Tested** : 22 Apr 2024  
**Unique Number** : 10989717 **Diagnosed** : 22 Apr 2024 - Wes Davis  
**Test Package** : CONST

**RIVER METALS RECYCLING - LOUISVILLE**  
 PO BOX 6521  
 LOUISVILLE, KY  
 US 40206  
 Contact: RYAN BOWDEN

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)

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