



THE G. W. VAN KEPPEL CO.  
Construction Equipment

# OIL ANALYSIS REPORT

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



Area  
**[E&S ROCK]**  
Machine Id  
**VOLVO EC380E 29218 (S/N 314103)**  
Component  
**Hydraulic System**  
Fluid  
**VOLVO SUPER HYDRAULIC OIL 46 (--- GAL)**

## RECOMMENDATION

Resample at the next service interval to monitor.

| Test           | UOM | Method      | Limit/Abn | Current            | History1    | History2    |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number  |     | Client Info |           | <b>VKC0001069</b>  | VKC0000871  | VKC0000444  |
| Sample Date    |     | Client Info |           | <b>06 Feb 2024</b> | 13 Oct 2023 | 29 Sep 2022 |
| Machine Age    | hrs | Client Info |           | <b>5993</b>        | 5571        | 3841        |
| Oil Age        | hrs | Client Info |           | <b>0</b>           | 0           | 1841        |
| Filter Age     | hrs | Client Info |           | <b>0</b>           | 0           | 1841        |
| Oil Changed    |     | Client Info |           | <b>Not Changed</b> | Not Changed | 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 | >25  | <b>13</b>   | 11   | 7    |
| Chromium     | ppm    | ASTM D5185m | >10  | <b>2</b>    | 2    | 2    |
| Nickel       | ppm    | ASTM D5185m | >10  | <b>0</b>    | 0    | <1   |
| Titanium     | ppm    | ASTM D5185m |      | <b>0</b>    | 0    | 0    |
| Silver       | ppm    | ASTM D5185m |      | <b>0</b>    | 0    | 0    |
| Aluminum     | ppm    | ASTM D5185m | >20  | <b>1</b>    | 1    | <1   |
| Lead         | ppm    | ASTM D5185m | >20  | <b>0</b>    | 0    | 0    |
| Copper       | ppm    | ASTM D5185m | >150 | <b>11</b>   | 13   | 16   |
| Tin          | ppm    | ASTM D5185m | >10  | <b>0</b>    | <1   | <1   |
| 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

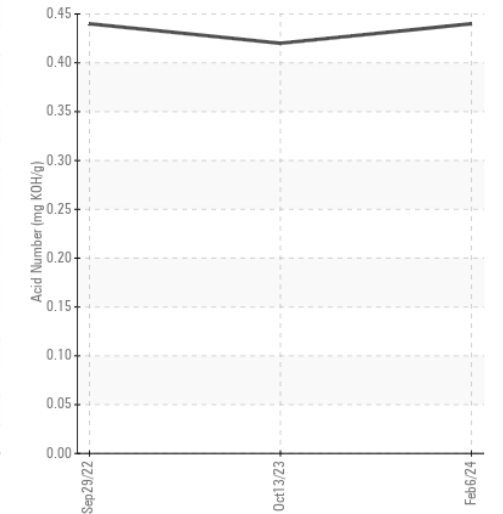
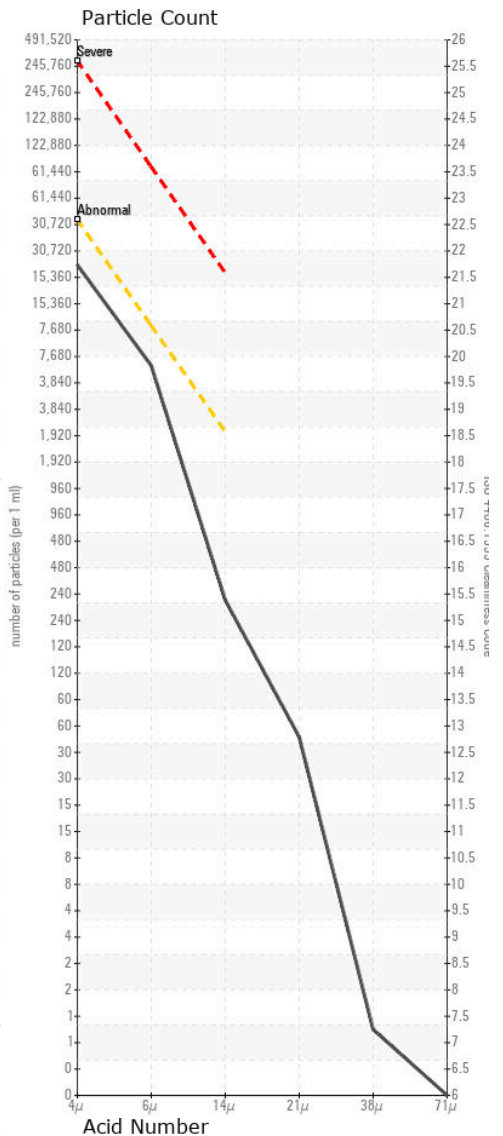
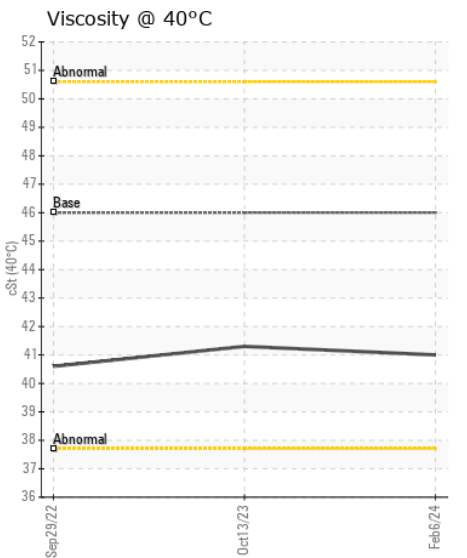
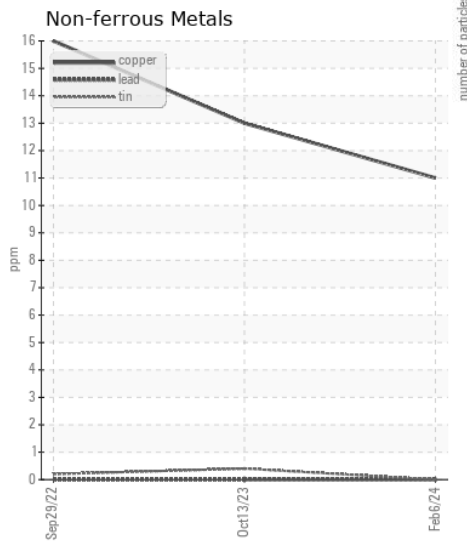
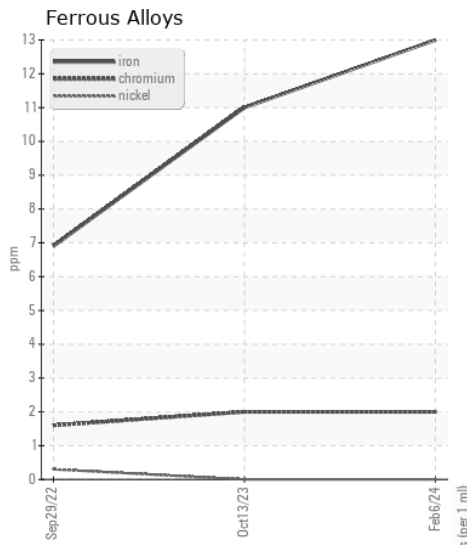
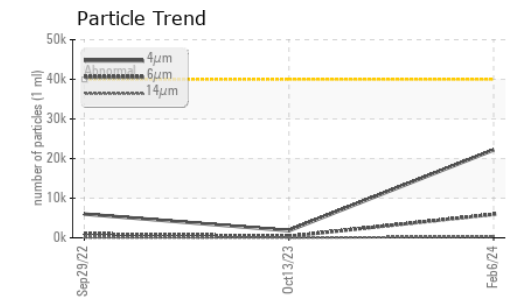
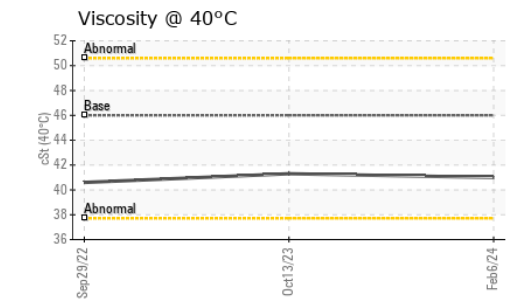
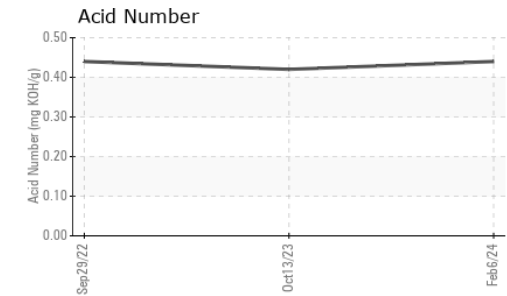
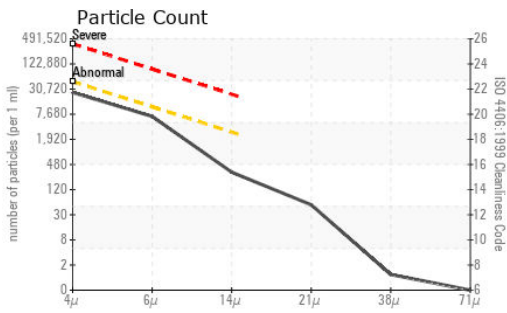
The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable.

|                  |        |              |           |                 |          |          |
|------------------|--------|--------------|-----------|-----------------|----------|----------|
| Silicon          | ppm    | ASTM D5185m  | >50       | <b>4</b>        | 4        | 4        |
| Potassium        | ppm    | ASTM D5185m  | >20       | <b>&lt;1</b>    | 0        | 1        |
| Water            |        | WC Method    | >0.1      | <b>NEG</b>      | NEG      | NEG      |
| Particles >4µm   |        | ASTM D7647   | >40000    | <b>22188</b>    | 1803     | 6002     |
| Particles >6µm   |        | ASTM D7647   | >10000    | <b>5921</b>     | 380      | 964      |
| Particles >14µm  |        | ASTM D7647   | >2500     | <b>276</b>      | 32       | 52       |
| Particles >21µm  |        | ASTM D7647   | >640      | <b>46</b>       | 15       | 14       |
| Particles >38µm  |        | ASTM D7647   | >160      | <b>1</b>        | 1        | 0        |
| Particles >71µm  |        | ASTM D7647   | >40       | <b>0</b>        | 0        | 0        |
| Oil Cleanliness  |        | ISO 4406 (c) | >22/20/18 | <b>22/20/15</b> | 18/16/12 | 20/17/13 |
| 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      | >0.1      | <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>0</b>    | 3    | <1   |
| Boron            | ppm      | ASTM D5185m | 14   | <b>0</b>    | 0    | 0    |
| Barium           | ppm      | ASTM D5185m | 0.0  | <b>2</b>    | 0    | 1    |
| Molybdenum       | ppm      | ASTM D5185m | 0.0  | <b>0</b>    | 0    | <1   |
| Manganese        | ppm      | ASTM D5185m | 0.0  | <b>0</b>    | <1   | <1   |
| Magnesium        | ppm      | ASTM D5185m | 2.6  | <b>5</b>    | <1   | 2    |
| Calcium          | ppm      | ASTM D5185m | 49   | <b>97</b>   | 118  | 100  |
| Phosphorus       | ppm      | ASTM D5185m | 354  | <b>314</b>  | 371  | 377  |
| Zinc             | ppm      | ASTM D5185m | 419  | <b>377</b>  | 468  | 500  |
| Sulfur           | ppm      | ASTM D5185m | 3719 | <b>1397</b> | 1512 | 1782 |
| Acid Number (AN) | mg KOH/g | ASTM D8045  |      | <b>0.44</b> | 0.42 | 0.44 |
| Visc @ 40°C      | cSt      | ASTM D445   | 46   | <b>41.0</b> | 41.3 | 40.6 |



Certificate L2367

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

Sample No. : VKC0001069

Lab Number : 06089520

Unique Number : 10876965

Test Package : MOBCE

Received : 14 Feb 2024

Tested : 15 Feb 2024

Diagnosed : 15 Feb 2024 - Wes Davis

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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)