

[HERC]



## VOLVO ECR145 315945

Diesel Engine

## DIESEL ENGINE OIL SAE 15W40 (--- GAL)

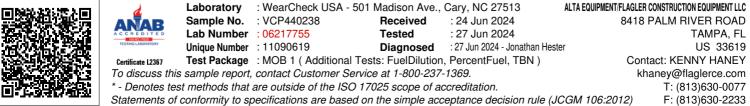
| RECOMMENDATION  | Test             | UOM      | Method      | Limit/Abn | Current          | History1 | History2 |
|---|------------------|----------|-------------|-----------|------------------|----------|----------|
| Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.                           | Sample Number    |          | Client Info |           | VCP440238        |          |          |
|   | Sample Date      |          | Client Info |           | 17 Jun 2024      |          |          |
|   | Machine Age      | hrs      | Client Info |           | 839              |          |          |
|   | Oil Age          | hrs      | Client Info |           | 0                |          |          |
|   | Filter Age       | hrs      | Client Info |           | 0                |          |          |
|   | Oil Changed      |          | Client Info |           | Changed          |          |          |
|   | Filter Changed   |          | Client Info |           | Changed          |          |          |
|   | Sample Status    |          |             |           | ATTENTION        |          |          |
| WEAR  | Iron             | ppm      | ASTM D5185m | >100      | 8                |          |          |
| Metal levels are typical for a new component breaking in.   | Chromium         | ppm      | ASTM D5185m | >10       | <1               |          |          |
|   | Nickel           | ppm      | ASTM D5185m |           | 0                |          |          |
|   | Titanium         | ppm      | ASTM D5185m |           | <1               |          |          |
|   | Silver           | ppm      | ASTM D5185m | >2        | 0                |          |          |
|   | Aluminum         | ppm      | ASTM D5185m | >10       | 4                |          |          |
|   | Lead             | ppm      | ASTM D5185m |           | 0                |          |          |
|   | Copper           | ppm      | ASTM D5185m |           | 2                |          |          |
|   | Tin              | ppm      | ASTM D5185m |           | 0                |          |          |
|   | Vanadium         | ppm      | ASTM D5185m |           | <1               |          |          |
|   | White Metal      | scalar   | *Visual     | NONE      | NONE             |          |          |
|   | Yellow Metal     | scalar   | *Visual     | NONE      | NONE             |          |          |
|   |                  |          |             |           |                  |          |          |
| CONTAMINATION   | Silicon          | ppm      | ASTM D5185m |           | 6                |          |          |
| Fuel content negligible. There is no indication of any contamination in the oil.  | Potassium        | ppm      | ASTM D5185m | >20       | <1               |          |          |
|   | Fuel             | %        | ASTM D3524  | >6.0      | 0.2              |          |          |
|   | Water            |          | WC Method   | >0.1      | NEG              |          |          |
|   | Glycol           |          | WC Method   |           | NEG              |          |          |
|   | Soot %           | %        | *ASTM D7844 |           | 0.1              |          |          |
|   | Nitration        | Abs/cm   | *ASTM D7624 | >20       | 7.6              |          |          |
|   | Sulfation        | Abs/.1mm | *ASTM D7415 |           | 17.6             |          |          |
|   | Silt             | scalar   | *Visual     | NONE      | NONE             |          |          |
|   | Debris           | scalar   | *Visual     | NONE      | NONE             |          |          |
|   | Sand/Dirt        | scalar   | *Visual     | NONE      | NONE             |          |          |
|   | Appearance       | scalar   | *Visual     | NORML     | NORML            |          |          |
|   | Odor             | scalar   | *Visual     | NORML     | NORML            |          |          |
|   | Emulsified Water | scalar   | *Visual     | >0.1      | NEG              |          |          |
| FLUID CONDITION   | Sodium           | ppm      | ASTM D5185m | >158      | <1               |          |          |
|   | Boron            | ppm      | ASTM D5185m | 250       | 96               |          |          |
| The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type. | Barium           | ppm      | ASTM D5185m | 10        | 0                |          |          |
|   | Molybdenum       | ppm      | ASTM D5185m | 100       | 28               |          |          |
|   | Manganese        | ppm      | ASTM D5185m |           | <1               |          |          |
|   | Magnesium        | ppm      | ASTM D5185m | 450       | 681              |          |          |
|   | Calcium          | ppm      | ASTM D5185m |           | 1412             |          |          |
|   | Phosphorus       | ppm      | ASTM D5185m | 1150      | 766              |          |          |
|   | Zinc             | ppm      | ASTM D5185m | 1350      | 882              |          |          |
|   | Sulfur           | ppm      | ASTM D5185m | 4250      | 3396             |          |          |
|   | Oxidation        | Abs/.1mm | *ASTM D7414 | >25       | 12.3             |          |          |
|   | Base Number (BN) | mg KOH/g | ASTM D2896  | 8.5       | 7.6              |          |          |
|   | Vier C 10000     | - 01     | AOTA DAAS   | 444       | <b>•</b> • • • • |          |          |

Visc @ 100°C cSt

ASTM D445 14.4

11.2





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