



# CONSTRUCTION EQUIPMENT

## 302922 VOLVO L90H 624904 - DIESEL ENGINE



**Sample No:** VCP417418  
**Oil Type:** VOLVO ULTRA DIESEL ENGINE OIL 15W40 VDS-3  
**Job No:** 302922



### SAMPLE INFORMATION

|               |                    |             |             |             |
|---------------|--------------------|-------------|-------------|-------------|
| Sample Number | <b>VCP417418</b>   | VCP403691   | VCP405476   | VCP389617   |
| Sample Date   | <b>06 Jul 2023</b> | 16 Mar 2023 | 19 Dec 2022 | 08 Oct 2022 |
| Machine Hours | <b>6313</b>        | 6080        | 5520        | 5028        |
| Oil Hours     | <b>0</b>           | 0           | 0           | 0           |
| Oil Changed   | <b>Changed</b>     | Changed     | Changed     | Changed     |
| Sample Status | <b>ABNORMAL</b>    | ABNORMAL    | ABNORMAL    | ABNORMAL    |

**COVANTA LAKES**  
 3830 ROGERS INDUSTRIAL PARK ROAD  
 OKAHUMPKA, FL  
 US 32762  
 Contact: SERVICE MANAGER

### OIL CONDITION

|                  |          |               |        |        |        |
|------------------|----------|---------------|--------|--------|--------|
| Visc @ 100°C     | cSt      | █ <b>12.8</b> | █ 12.9 | █ 13.1 | █ 13.3 |
| Base Number (BN) | mg KOH/g | █ <b>10.2</b> | █ 9.4  | █ 9.5  | █ 11.0 |
| Oxidation (PA)   | %        | <b>82</b>     | 92     | 90     | 96     |

T:  
F:

### CONTAMINATION

|                |     |                |       |       |       |
|----------------|-----|----------------|-------|-------|-------|
| Soot %         | %   | █ <b>0.4</b>   | █ 0.6 | █ 0.5 | █ 0.6 |
| Nitration (PA) | %   | <b>60</b>      | 75    | 72    | 77    |
| Sulfation (PA) | %   | <b>63</b>      | 66    | 65    | 69    |
| Glycol         | %   | <b>NEG</b>     | NEG   | NEG   | NEG   |
| Fuel           | %   | <b>&lt;1.0</b> | <1.0  | <1.0  | <1.0  |
| Silicon        | ppm | ▲ <b>30</b>    | ▲ 29  | ▲ 24  | ▲ 33  |
| Sodium         | ppm | █ <b>2</b>     | █ 2   | █ 1   | █ <1  |
| Potassium      | ppm | █ <b>1</b>     | █ <1  | █ 2   | █ 2   |

### Diagnosis

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor. All component wear rates are normal. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

### WEAR METALS

|            |     |                |      |      |      |
|------------|-----|----------------|------|------|------|
| Iron       | ppm | █ <b>8</b>     | █ 12 | █ 11 | █ 13 |
| Copper     | ppm | █ <b>1</b>     | █ <1 | █ <1 | █ 1  |
| Lead       | ppm | █ <b>&lt;1</b> | █ 1  | █ <1 | █ <1 |
| Tin        | ppm | █ <b>0</b>     | █ <1 | █ <1 | █ <1 |
| Aluminum   | ppm | ▲ <b>27</b>    | ▲ 13 | ▲ 12 | ▲ 18 |
| Chromium   | ppm | █ <b>&lt;1</b> | █ <1 | █ <1 | █ <1 |
| Molybdenum | ppm | █ <b>42</b>    | █ 44 | █ 42 | █ 45 |
| Nickel     | ppm | █ <b>&lt;1</b> | █ <1 | █ 0  | █ 0  |
| Titanium   | ppm | <b>&lt;1</b>   | 0    | 0    | 0    |
| Silver     | ppm | █ <b>0</b>     | █ 0  | █ 0  | █ 0  |
| Manganese  | ppm | █ <b>&lt;1</b> | █ <1 | █ <1 | █ <1 |
| Vanadium   | ppm | <b>&lt;1</b>   | 0    | 0    | 0    |

### ADDITIVES

|            |     |               |        |        |        |
|------------|-----|---------------|--------|--------|--------|
| Calcium    | ppm | █ <b>1625</b> | █ 1723 | █ 1647 | █ 1715 |
| Magnesium  | ppm | █ <b>484</b>  | █ 554  | █ 481  | █ 512  |
| Zinc       | ppm | █ <b>1036</b> | █ 1170 | █ 1063 | █ 1126 |
| Phosphorus | ppm | █ <b>841</b>  | █ 947  | █ 882  | █ 932  |
| Barium     | ppm | █ <b>0</b>    | █ 0    | █ 1    | █ 2    |
| Boron      | ppm | █ <b>43</b>   | █ 27   | █ 28   | █ 23   |

**Depot:** COVOKA  
**Unique No:** 10550583  
**Signed:** Don Baldrige  
**Report Date:** 12 Jul 2023



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## GRAPHS

