



# OIL ANALYSIS REPORT

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



Machine Id  
**Stbd Ship Service Generator (S/N C6T00281)**  
Component  
**Starboard Genset**  
Fluid  
**CAT DIESEL ENGINE OIL 15W40 (18 LTR)**

## RECOMMENDATION

Resample at the next service interval to monitor.

| Test           | UOM | Method      | Limit/Abn | Current            | History1    | History2    |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number  |     | Client Info |           | <b>WC0829983</b>   | WC0829975   | WC0754145   |
| Sample Date    |     | Client Info |           | <b>05 Jun 2024</b> | 15 Oct 2023 | 03 Jun 2023 |
| Machine Age    | hrs | Client Info |           | <b>31540</b>       | 30000       | 28500       |
| Oil Age        | hrs | Client Info |           | <b>500</b>         | 500         | 500         |
| Filter Age     | hrs | Client Info |           | <b>500</b>         | 500         | 500         |
| Oil Changed    |     | Client Info |           | <b>Changed</b>     | Changed     | Changed     |
| Filter Changed |     | Client Info |           | <b>Changed</b>     | Changed     | Changed     |
| Sample Status  |     |             |           | <b>NORMAL</b>      | MARGINAL    | MARGINAL    |

## WEAR

All component wear rates are normal.

|              |        |               |      |              |       |      |
|--------------|--------|---------------|------|--------------|-------|------|
| Iron         | ppm    | ASTM D5185(m) | >62  | <b>9</b>     | 6     | 8    |
| Chromium     | ppm    | ASTM D5185(m) | >3   | <b>&lt;1</b> | 0     | 0    |
| Nickel       | ppm    | ASTM D5185(m) | >2   | <b>&lt;1</b> | 1     | <1   |
| Titanium     | ppm    | ASTM D5185(m) |      | <b>0</b>     | 0     | 0    |
| Silver       | ppm    | ASTM D5185(m) | >5   | <b>&lt;1</b> | <1    | 0    |
| Aluminum     | ppm    | ASTM D5185(m) | >4   | <b>2</b>     | 1     | 1    |
| Lead         | ppm    | ASTM D5185(m) | >25  | <b>&lt;1</b> | 2     | 1    |
| Copper       | ppm    | ASTM D5185(m) | >274 | <b>7</b>     | 4     | 6    |
| Tin          | ppm    | ASTM D5185(m) | >2   | <b>0</b>     | 0     | 0    |
| Vanadium     | ppm    | ASTM D5185(m) |      | <b>0</b>     | 0     | 0    |
| White Metal  | scalar | Visual*       | NONE | <b>NONE</b>  | VLITE | NONE |
| Yellow Metal | scalar | Visual*       | NONE | <b>NONE</b>  | NONE  | NONE |

## CONTAMINATION

There is no indication of any contamination in the oil.

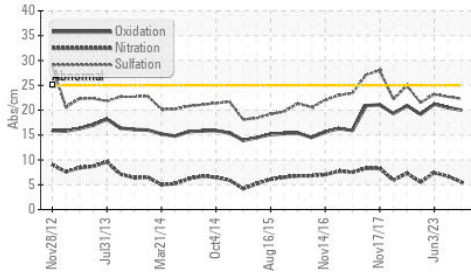
|                  |          |               |       |                |       |       |
|------------------|----------|---------------|-------|----------------|-------|-------|
| Silicon          | ppm      | ASTM D5185(m) | >15   | <b>4</b>       | 4     | 3     |
| Potassium        | ppm      | ASTM D5185(m) | >20   | <b>&lt;1</b>   | 0     | 0     |
| Fuel             |          | WC Method     | >4.0  | <b>&lt;1.0</b> | ▲ 2.1 | ▲ 2.8 |
| Water            |          | WC Method     | >0.1  | <b>NEG</b>     | NEG   | NEG   |
| Glycol           |          | WC Method     |       | <b>NEG</b>     | NEG   | NEG   |
| Soot %           | %        | ASTM D7844*   |       | <b>0</b>       | 0.1   | 0.2   |
| Nitration        | Abs/cm   | ASTM D7624*   | >20   | <b>5.5</b>     | 6.7   | 7.4   |
| Sulfation        | Abs/.1mm | ASTM D7415*   | >30   | <b>22.3</b>    | 22.7  | 23.2  |
| 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*       | >0.1  | <b>NEG</b>     | NEG   | NEG   |

## FLUID CONDITION

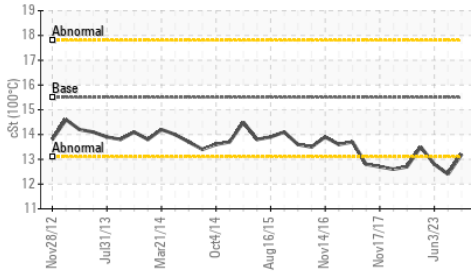
The condition of the oil is acceptable for the time in service.

|              |          |               |      |             |      |      |
|--------------|----------|---------------|------|-------------|------|------|
| Sodium       | ppm      | ASTM D5185(m) |      | <b>6</b>    | 3    | 3    |
| Boron        | ppm      | ASTM D5185(m) |      | <b>55</b>   | 40   | 41   |
| Barium       | ppm      | ASTM D5185(m) |      | <b>1</b>    | <1   | 0    |
| Molybdenum   | ppm      | ASTM D5185(m) |      | <b>39</b>   | 42   | 42   |
| Manganese    | ppm      | ASTM D5185(m) |      | <b>1</b>    | 0    | <1   |
| Magnesium    | ppm      | ASTM D5185(m) |      | <b>484</b>  | 512  | 508  |
| Calcium      | ppm      | ASTM D5185(m) |      | <b>1654</b> | 1727 | 1705 |
| Phosphorus   | ppm      | ASTM D5185(m) |      | <b>853</b>  | 908  | 937  |
| Zinc         | ppm      | ASTM D5185(m) | 1460 | <b>1050</b> | 1081 | 1080 |
| Sulfur       | ppm      | ASTM D5185(m) |      | <b>2305</b> | 2382 | 2294 |
| Oxidation    | Abs/.1mm | ASTM D7414*   | >25  | <b>20.0</b> | 20.5 | 21.2 |
| Visc @ 100°C | cSt      | ASTM D7279(m) | 15.5 | <b>13.2</b> | 12.4 | 12.8 |

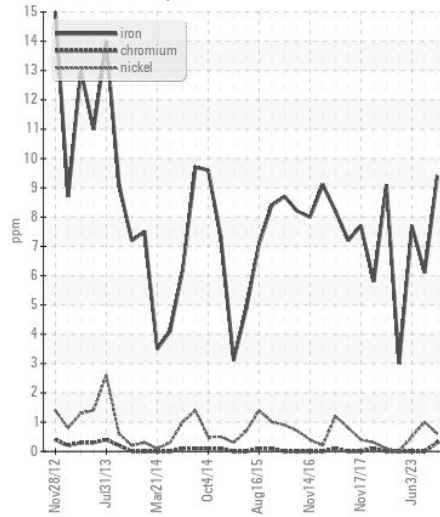
**FT-IR (Direct Trend)**



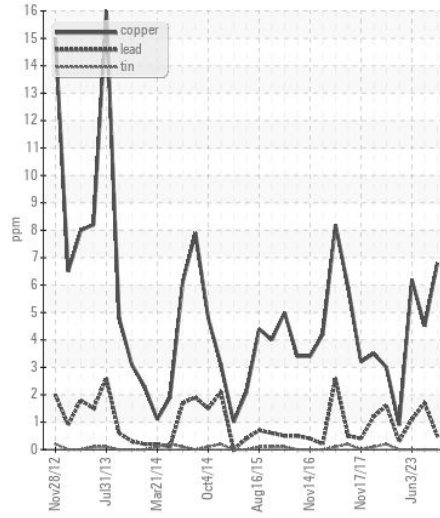
**Viscosity @ 100°C**



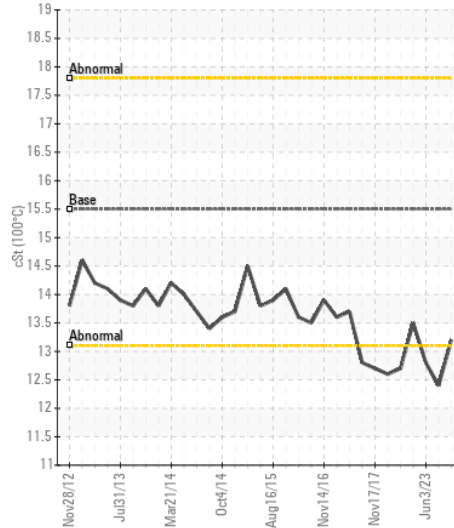
**Ferrous Alloys**



**Non-ferrous Metals**



**Viscosity @ 100°C**



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : WC0829983  
**Lab Number** : 02643064  
**Unique Number** : 5800603  
**Test Package** : MAR 1

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

**CANADIAN COAST GUARD**  
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To discuss this sample report, contact Customer Service at 1-800-268-2131.  
 Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab.  
 Validity of results and interpretation are based on the sample and information as supplied.