



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

Area  
**ELEANOR G MCDONALD**  
Machine Id  
**[ELEANOR G MCDONALD] 003 552824-3**  
Component  
**Starboard Main Engine**  
Fluid  
**CHEVRON DELO 710 LS (--- GAL)**

**RECOMMENDATION**

Resample at the next service interval to monitor.

| Test           | UOM | Method      | Limit/Abn | Current            | History1    | History2    |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number  |     | Client Info |           | <b>MW0065704</b>   | MW0065697   | MW0055471   |
| Sample Date    |     | Client Info |           | <b>05 Mar 2024</b> | 01 Jan 2024 | 01 Dec 2023 |
| Machine Age    | hrs | Client Info |           | <b>12715</b>       | 12205       | 11446       |
| Oil Age        | hrs | Client Info |           | <b>12715</b>       | 12205       | 11446       |
| Filter Age     | hrs | Client Info |           | <b>605</b>         | 95          | 44          |
| Oil Changed    |     | Client Info |           | <b>N/A</b>         | Changed     | Changed     |
| Filter Changed |     | Client Info |           | <b>N/A</b>         | Changed     | Changed     |
| Sample Status  |     |             |           | <b>NORMAL</b>      | NORMAL      | NORMAL      |

**WEAR**

All component wear rates are normal.

|              |        |             |      |              |      |      |
|--------------|--------|-------------|------|--------------|------|------|
| Iron         | ppm    | ASTM D5185m | >75  | <b>22</b>    | 17   | 17   |
| Chromium     | ppm    | ASTM D5185m | >8   | <b>2</b>     | 2    | 2    |
| Nickel       | ppm    | ASTM D5185m | >2   | <b>0</b>     | 0    | 0    |
| Titanium     | ppm    | ASTM D5185m | >3   | <b>&lt;1</b> | <1   | <1   |
| Silver       | ppm    | ASTM D5185m | >2   | <b>0</b>     | 0    | 0    |
| Aluminum     | ppm    | ASTM D5185m | >15  | <b>3</b>     | 2    | 2    |
| Lead         | ppm    | ASTM D5185m | >18  | <b>5</b>     | 6    | 6    |
| Copper       | ppm    | ASTM D5185m | >80  | <b>25</b>    | 21   | 22   |
| Tin          | ppm    | ASTM D5185m | >14  | <b>6</b>     | 6    | 6    |
| Vanadium     | ppm    | ASTM D5185m |      | <b>0</b>     | 0    | <1   |
| White Metal  | scalar | *Visual     | NONE | <b>NONE</b>  | NONE | NONE |
| Yellow Metal | scalar | *Visual     | NONE | <b>NONE</b>  | NONE | NONE |

**CONTAMINATION**

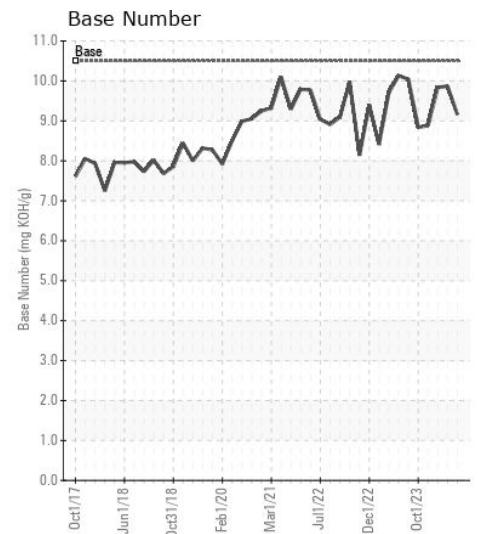
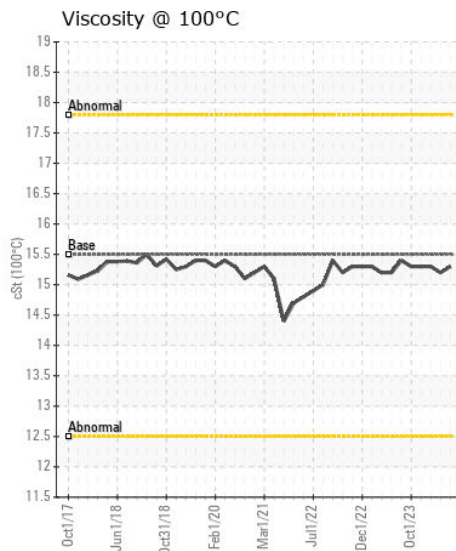
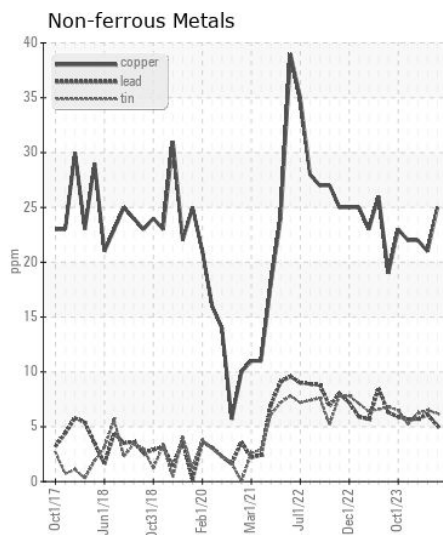
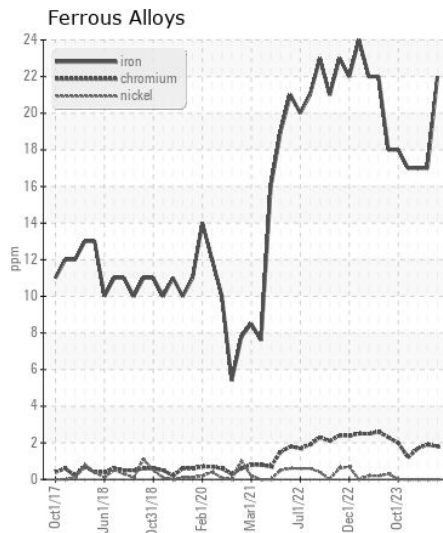
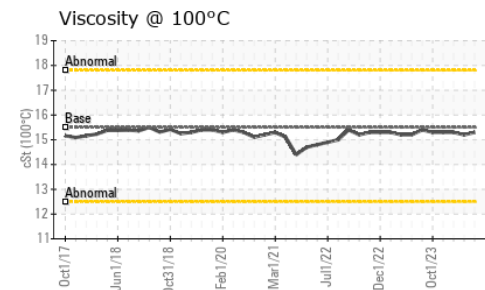
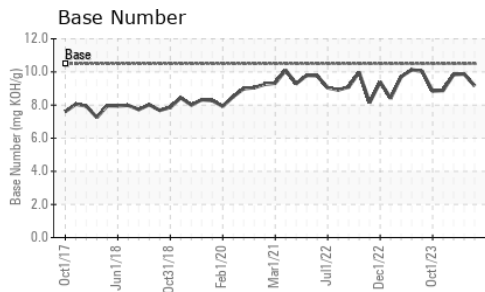
There is no indication of any contamination in the oil.

|                  |          |             |       |                |       |       |
|------------------|----------|-------------|-------|----------------|-------|-------|
| Silicon          | ppm      | ASTM D5185m | >20   | <b>5</b>       | 4     | 4     |
| Potassium        | ppm      | ASTM D5185m | >20   | <b>2</b>       | <1    | 2     |
| Fuel             |          | WC Method   | >4.0  | <b>&lt;1.0</b> | <1.0  | <1.0  |
| Water            |          | WC Method   | >0.1  | <b>NEG</b>     | NEG   | NEG   |
| Glycol           |          | WC Method   |       | <b>NEG</b>     | NEG   | NEG   |
| Soot %           | %        | *ASTM D7844 |       | <b>1.5</b>     | 1.6   | 1.5   |
| Nitration        | Abs/cm   | *ASTM D7624 | >20   | <b>8.6</b>     | 8.6   | 8.6   |
| Sulfation        | Abs/.1mm | *ASTM D7415 | >30   | <b>18.0</b>    | 18.2  | 18.3  |
| 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 BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

|                  |          |             |      |              |      |      |
|------------------|----------|-------------|------|--------------|------|------|
| Sodium           | ppm      | ASTM D5185m | >75  | <b>&lt;1</b> | <1   | <1   |
| Boron            | ppm      | ASTM D5185m |      | <b>46</b>    | 40   | 42   |
| Barium           | ppm      | ASTM D5185m |      | <b>0</b>     | 0    | 0    |
| Molybdenum       | ppm      | ASTM D5185m |      | <b>50</b>    | 47   | 44   |
| Manganese        | ppm      | ASTM D5185m |      | <b>1</b>     | 1    | 1    |
| Magnesium        | ppm      | ASTM D5185m |      | <b>26</b>    | 29   | 31   |
| Calcium          | ppm      | ASTM D5185m |      | <b>3660</b>  | 3475 | 3294 |
| Phosphorus       | ppm      | ASTM D5185m |      | <b>30</b>    | 24   | 25   |
| Zinc             | ppm      | ASTM D5185m |      | <b>26</b>    | 23   | 21   |
| Sulfur           | ppm      | ASTM D5185m |      | <b>2700</b>  | 2575 | 2313 |
| Oxidation        | Abs/.1mm | *ASTM D7414 | >25  | <b>8.6</b>   | 8.5  | 8.6  |
| Base Number (BN) | mg KOH/g | ASTM D2896  | 10.5 | <b>9.16</b>  | 9.87 | 9.84 |
| Visc @ 100°C     | cSt      | ASTM D445   | 15.5 | <b>15.3</b>  | 15.2 | 15.3 |



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : MW0065704  
**Lab Number** : 06121742  
**Unique Number** : 10930575  
**Test Package** : MAR 2  
**Received** : 18 Mar 2024  
**Tested** : 19 Mar 2024  
**Diagnosed** : 19 Mar 2024 - Wes Davis

**INGRAM BARGE**  
 900 S 3RD ST  
 PADUCAH, KY  
 US 42003

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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)