



| | |
|-----------------|---------------|
| WEAR | NORMAL |
| CONTAMINATION | NORMAL |
| FLUID CONDITION | NORMAL |

Area
GST
Machine Id
GST
Component
Starboard Main Engine
Fluid
CHEVRON DELO 710 LS (300 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | MW0060865 | MW0054950 | MW0017041 |
| Sample Date | | Client Info | | 16 Nov 2023 | 29 Sep 2023 | 25 May 2023 |
| Machine Age | hrs | Client Info | | 72548 | 71525 | 10777 |
| Oil Age | hrs | Client Info | | 2501 | 1453 | 4594 |
| Filter Age | hrs | Client Info | | 1328 | 250 | 1394 |
| Oil Changed | | Client Info | | Not Changd | Not Changd | N/A |
| Filter Changed | | Client Info | | Changed | Changed | N/A |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |

WEAR

All component wear rates are normal.

| | | | | | | |
|--------------|--------|-------------|------|--------------|------|------|
| Iron | ppm | ASTM D5185m | >75 | 12 | 26 | 16 |
| Chromium | ppm | ASTM D5185m | >8 | <1 | 1 | 2 |
| Nickel | ppm | ASTM D5185m | >2 | <1 | <1 | <1 |
| Titanium | ppm | ASTM D5185m | >3 | 0 | <1 | <1 |
| Silver | ppm | ASTM D5185m | >2 | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >15 | 2 | 2 | 2 |
| Lead | ppm | ASTM D5185m | >18 | 2 | 3 | 2 |
| Copper | ppm | ASTM D5185m | >80 | 6 | 7 | 6 |
| Tin | ppm | ASTM D5185m | >14 | 3 | 5 | 4 |
| Vanadium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |

CONTAMINATION

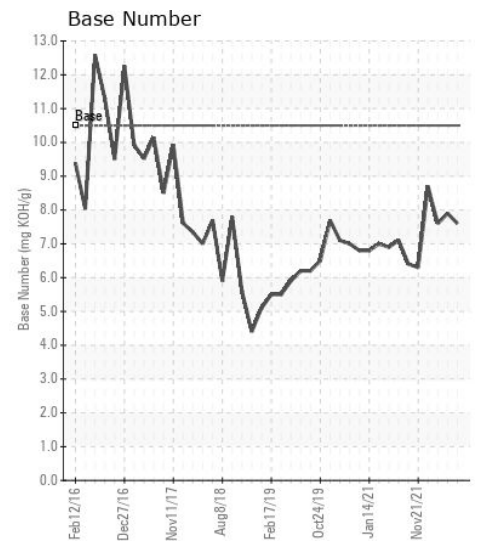
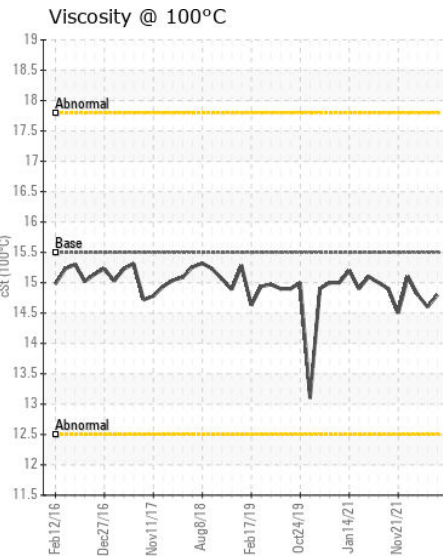
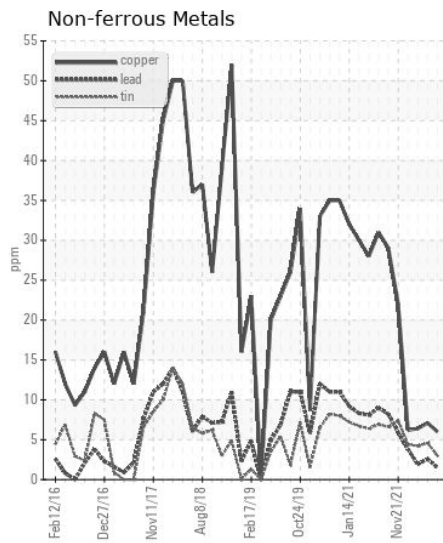
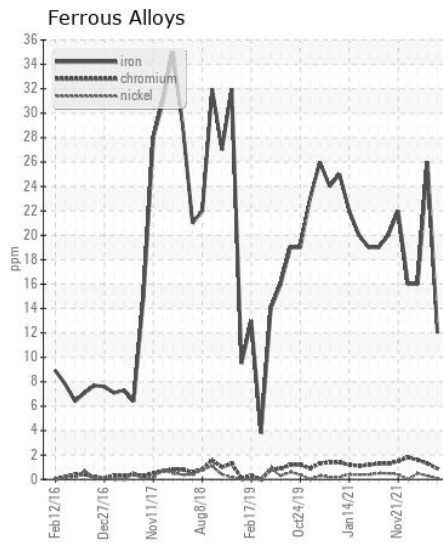
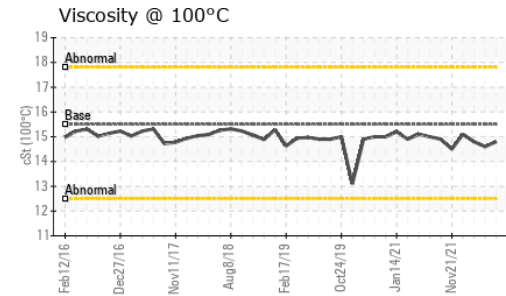
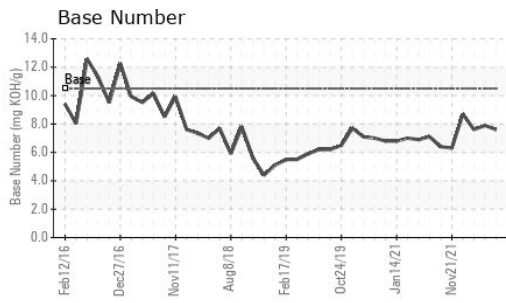
There is no indication of any contamination in the oil.

| | | | | | | |
|------------------|----------|-------------|-------|----------------|-------|-------|
| Silicon | ppm | ASTM D5185m | >20 | 4 | 7 | 6 |
| Potassium | ppm | ASTM D5185m | >20 | 1 | 3 | 1 |
| Fuel | | WC Method | >4.0 | <1.0 | <1.0 | <1.0 |
| Water | | WC Method | >0.1 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| Soot % | % | *ASTM D7844 | >3 | 0.4 | 0.6 | 0.8 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 8.2 | 8.1 | 8.6 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 16.3 | 16.4 | 16.5 |
| Silt | scalar | *Visual | NONE | NONE | NONE | NONE |
| Debris | scalar | *Visual | NONE | NONE | NONE | NONE |
| Sand/Dirt | scalar | *Visual | NONE | NONE | NONE | NONE |
| Appearance | scalar | *Visual | NORML | NORML | NORML | NORML |
| Odor | scalar | *Visual | NORML | NORML | NORML | NORML |
| Emulsified Water | scalar | *Visual | >0.1 | NEG | 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 | 7 | 37 | 38 |
| Boron | ppm | ASTM D5185m | | 38 | 39 | 52 |
| Barium | ppm | ASTM D5185m | | 0 | 0 | <1 |
| Molybdenum | ppm | ASTM D5185m | | 41 | 40 | 50 |
| Manganese | ppm | ASTM D5185m | | <1 | 1 | <1 |
| Magnesium | ppm | ASTM D5185m | | 11 | 13 | 16 |
| Calcium | ppm | ASTM D5185m | | 3451 | 3436 | 3979 |
| Phosphorus | ppm | ASTM D5185m | | 4 | 4 | 3 |
| Zinc | ppm | ASTM D5185m | | 0 | 0 | <1 |
| Sulfur | ppm | ASTM D5185m | | 2318 | 2383 | 2827 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 9.7 | 8.8 | 9.0 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 10.5 | 7.6 | 7.9 | 7.6 |
| Visc @ 100°C | cSt | ASTM D445 | 15.5 | 14.8 | 14.6 | 14.8 |



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0060865 **Received** : 10 Jan 2024
Lab Number : 06056341 **Diagnosed** : 11 Jan 2024
Unique Number : 10822290 **Diagnostician** : Wes Davis
Test Package : MAR 2

AMERICAN RIVER TRANSPORTATION CO.
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US 63111
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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)