



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

Area
LOUISIANA STAR
Machine Id
LST
Component
Port Main Engine
Fluid
CHEVRON DELO 710 LS (41 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | MW0065096 | MW0065154 | MW0065133 |
| Sample Date | | Client Info | | 12 Apr 2024 | 08 Mar 2024 | 29 Jan 2024 |
| Machine Age | hrs | Client Info | | 4047 | 3336 | 2531 |
| Oil Age | hrs | Client Info | | 0 | 0 | 0 |
| Filter Age | hrs | Client Info | | 0 | 0 | 0 |
| Oil Changed | | Client Info | | N/A | N/A | N/A |
| Filter Changed | | Client Info | | N/A | N/A | N/A |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |

WEAR

All component wear rates are normal.

| | | | | | | |
|--------------|--------|-------------|------|--------------|------|------|
| Iron | ppm | ASTM D5185m | >75 | 25 | 49 | 20 |
| Chromium | ppm | ASTM D5185m | >8 | <1 | 2 | <1 |
| Nickel | ppm | ASTM D5185m | >2 | 0 | <1 | 0 |
| Titanium | ppm | ASTM D5185m | >3 | 0 | <1 | <1 |
| Silver | ppm | ASTM D5185m | >2 | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >15 | 2 | 3 | 2 |
| Lead | ppm | ASTM D5185m | >18 | 11 | 15 | 2 |
| Copper | ppm | ASTM D5185m | >80 | 0 | 2 | 2 |
| Tin | ppm | ASTM D5185m | >14 | <1 | 2 | 2 |
| Vanadium | ppm | ASTM D5185m | | 0 | <1 | <1 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |

CONTAMINATION

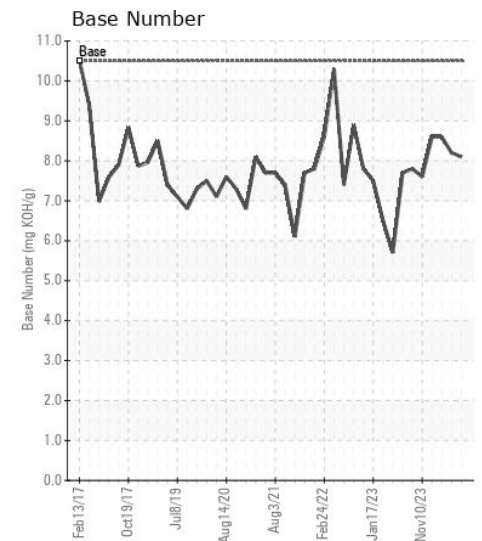
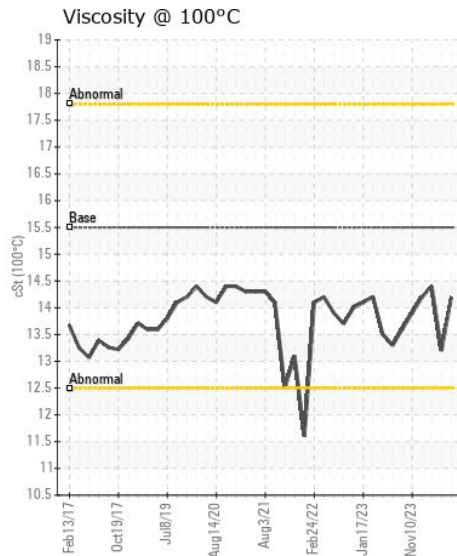
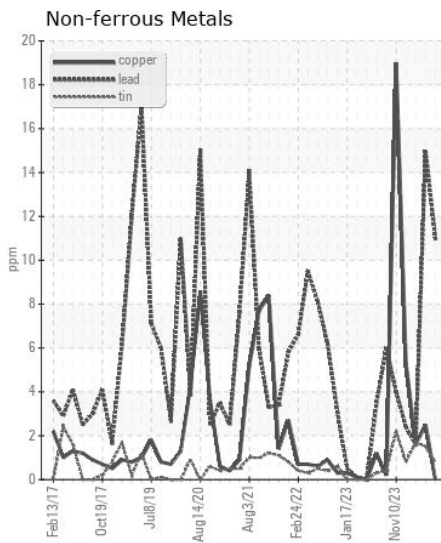
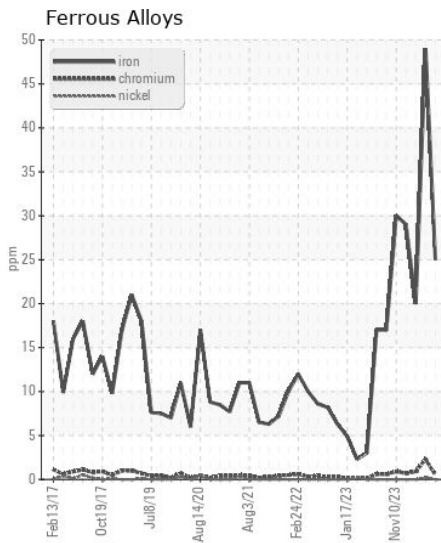
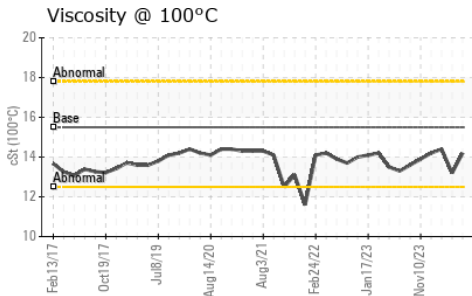
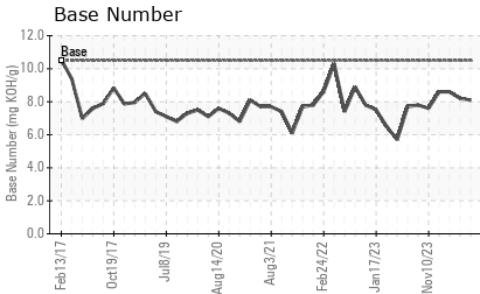
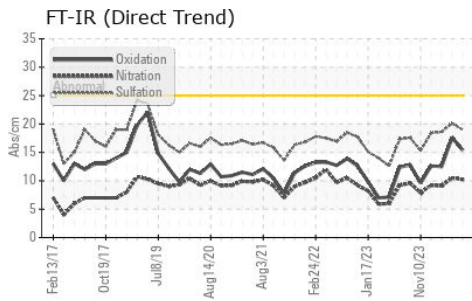
There is no indication of any contamination in the oil.

| | | | | | | |
|------------------|----------|-------------|-------|----------------|-------|-------|
| Silicon | ppm | ASTM D5185m | >20 | 3 | 4 | 4 |
| Potassium | ppm | ASTM D5185m | >20 | <1 | 2 | 0 |
| 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 | | 0.3 | 0.6 | 0.4 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 10.2 | 10.5 | 9.1 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 19.0 | 20.1 | 18.6 |
| 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 | 1 | <1 | 1 |
| Boron | ppm | ASTM D5185m | | 36 | 35 | 23 |
| Barium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | 35 | 36 | 25 |
| Manganese | ppm | ASTM D5185m | | <1 | 1 | <1 |
| Magnesium | ppm | ASTM D5185m | | 12 | 8 | 9 |
| Calcium | ppm | ASTM D5185m | | 3486 | 3250 | 3005 |
| Phosphorus | ppm | ASTM D5185m | | 2 | 5 | <1 |
| Zinc | ppm | ASTM D5185m | | <1 | <1 | 0 |
| Sulfur | ppm | ASTM D5185m | | 3103 | 2626 | 2946 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 15.4 | 17.6 | 12.5 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 10.5 | 8.1 | 8.2 | 8.6 |
| Visc @ 100°C | cSt | ASTM D445 | 15.5 | 14.2 | 13.2 | 14.4 |



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0065096
Lab Number : 06175271
Unique Number : 11021324
Test Package : MAR 2
Received : 10 May 2024
Tested : 13 May 2024
Diagnosed : 13 May 2024 - Don Baldrige

AMERICAN RIVER TRANSPORTATION CO.
 P.O. BOX 2889
 ST. LOUIS, MO
 US 63111
 Contact: BRIAN GRIEWING
 brian.griewing@adm.com
 T:
 F: (314)481-5278

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)