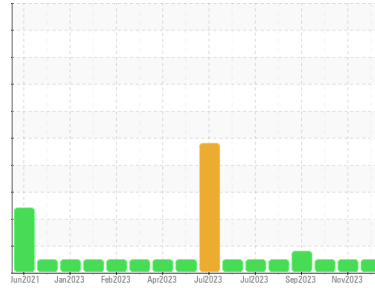




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id
920056-102721

Component
Diesel Engine

Fluid
CHEVRON DELO 400 MULTIGRADE 15W40 (--- LTR)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

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.

SAMPLE INFORMATION

| method | limit/base | current | history1 | history2 |
|---------------|-------------|--------------------|-------------|-------------|
| Sample Number | Client Info | GFL0098459 | GFL0098452 | GFL0073536 |
| Sample Date | Client Info | 14 Nov 2023 | 03 Nov 2023 | 03 Oct 2023 |
| Machine Age | hrs | 5663 | 5619 | 5421 |
| Oil Age | hrs | 330 | 286 | 88 |
| Oil Changed | Client Info | N/A | N/A | N/A |
| Sample Status | | NORMAL | NORMAL | NORMAL |

CONTAMINATION

| method | limit/base | current | history1 | history2 |
|--------|----------------|----------------|----------|----------|
| Fuel | WC Method >5 | <1.0 | <1.0 | <1.0 |
| Water | WC Method >0.2 | NEG | NEG | NEG |
| Glycol | WC Method | NEG | NEG | NEG |

WEAR METALS

| method | limit/base | current | history1 | history2 |
|----------|----------------------|--------------|----------|----------|
| Iron | ppm ASTM D5185m >110 | 8 | 8 | 7 |
| Chromium | ppm ASTM D5185m >4 | <1 | <1 | 0 |
| Nickel | ppm ASTM D5185m >2 | 0 | 0 | 0 |
| Titanium | ppm ASTM D5185m | 0 | 0 | 0 |
| Silver | ppm ASTM D5185m >2 | 0 | <1 | 0 |
| Aluminum | ppm ASTM D5185m >25 | 5 | 2 | 10 |
| Lead | ppm ASTM D5185m >45 | 0 | <1 | <1 |
| Copper | ppm ASTM D5185m >85 | 21 | 21 | 9 |
| Tin | ppm ASTM D5185m >4 | <1 | 0 | 0 |
| Vanadium | ppm ASTM D5185m | 0 | 0 | 0 |
| Cadmium | ppm ASTM D5185m | 0 | 0 | 0 |

ADDITIVES

| method | limit/base | current | history1 | history2 |
|------------|----------------------|--------------|----------|----------|
| Boron | ppm ASTM D5185m 151 | 89 | 91 | 73 |
| Barium | ppm ASTM D5185m 0.4 | 0 | 6 | 0 |
| Molybdenum | ppm ASTM D5185m 250 | 87 | 78 | 77 |
| Manganese | ppm ASTM D5185m | <1 | 0 | 0 |
| Magnesium | ppm ASTM D5185m 0 | 979 | 791 | 913 |
| Calcium | ppm ASTM D5185m 2046 | 1364 | 1165 | 1198 |
| Phosphorus | ppm ASTM D5185m 1043 | 1058 | 929 | 948 |
| Zinc | ppm ASTM D5185m 943 | 1288 | 1069 | 1232 |
| Sulfur | ppm ASTM D5185m 5012 | 3384 | 3248 | 3145 |

CONTAMINANTS

| method | limit/base | current | history1 | history2 |
|-----------|---------------------|----------|----------|----------|
| Silicon | ppm ASTM D5185m >30 | 4 | 4 | 4 |
| Sodium | ppm ASTM D5185m | 2 | 0 | 2 |
| Potassium | ppm ASTM D5185m >20 | 3 | 3 | <1 |

INFRA-RED

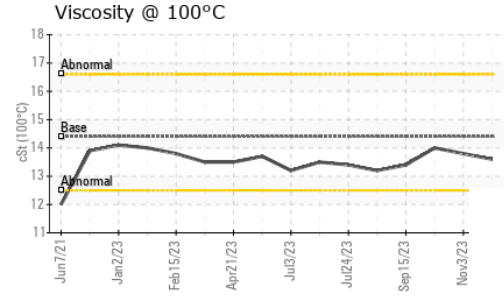
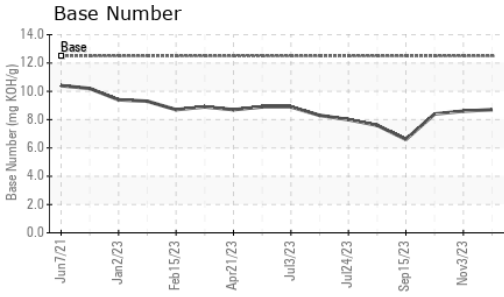
| method | limit/base | current | history1 | history2 |
|-----------|--------------------------|-------------|----------|----------|
| Soot % | % *ASTM D7844 >3 | 0.2 | 0.2 | 0.3 |
| Nitration | Abs/cm *ASTM D7624 >20 | 6.6 | 6.2 | 6.9 |
| Sulfation | Abs/.1mm *ASTM D7415 >30 | 20.2 | 19.9 | 20.2 |

FLUID DEGRADATION

| method | limit/base | current | history1 | history2 |
|------------------|--------------------------|-------------|----------|----------|
| Oxidation | Abs/.1mm *ASTM D7414 >25 | 14.9 | 14.5 | 15.2 |
| Base Number (BN) | mg KOH/g ASTM D2896 12.5 | 8.7 | 8.6 | 8.4 |



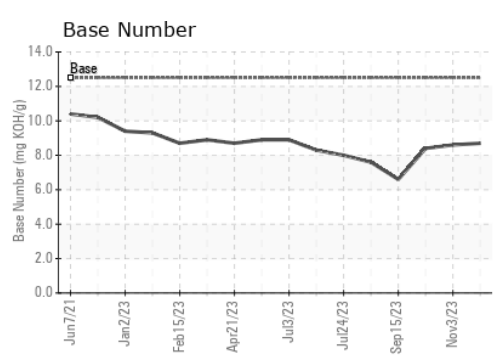
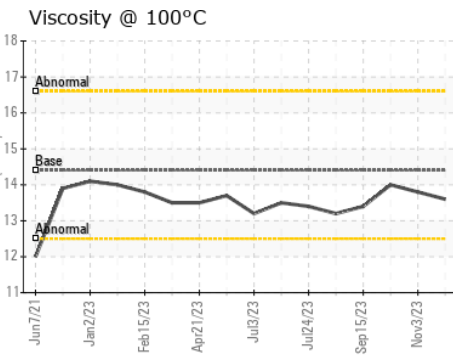
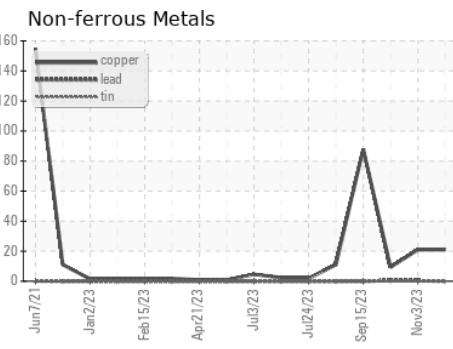
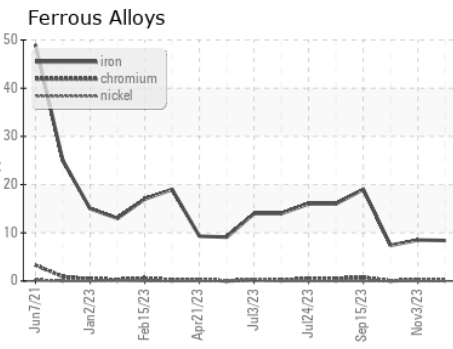
OIL ANALYSIS REPORT



| VISUAL | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|---------|----------|----------|
| White Metal | scalar | *Visual | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | NONE | NONE |
| Silt | scalar | *Visual | NONE | NONE | NONE |
| Debris | scalar | *Visual | NONE | NONE | NONE |
| Sand/Dirt | scalar | *Visual | NONE | NONE | NONE |
| Appearance | scalar | *Visual | NORML | NORML | NORML |
| Odor | scalar | *Visual | NORML | NORML | NORML |
| Emulsified Water | scalar | *Visual | >0.2 | NEG | NEG |
| Free Water | scalar | *Visual | | NEG | NEG |

| FLUID PROPERTIES | method | limit/base | current | history1 | history2 | |
|------------------|--------|------------|---------|-------------|----------|------|
| Visc @ 100°C | cSt | ASTM D445 | 14.4 | 13.6 | 13.8 | 14.0 |

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0098459 **Received** : 22 Nov 2023
Lab Number : **06014817** **Diagnosed** : 25 Nov 2023
Unique Number : 10753961 **Diagnostician** : Don Baldrige
Test Package : FLEET

GFL Environmental - 180 - Tuscaloosa Hauling
 4701 12TH ST NE
 Tuscaloosa, AL
 US 35404
 Contact: FREDERICK ROGERS
 fred.rogers@gflenv.com

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)