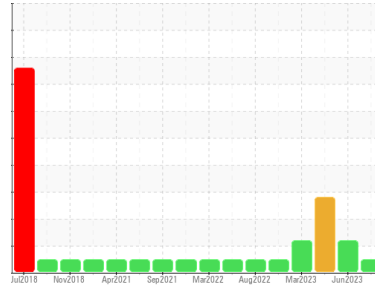




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id
801107

Component
Diesel Engine

Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

DIAGNOSIS

Recommendation

The oil change at the time of sampling has been noted. Resample at the next service interval to monitor. No other corrective action is recommended at this time.

Wear

All component wear rates are normal.

Contamination

Light fuel dilution occurring. No other contaminants were detected in the oil.

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.

SAMPLE INFORMATION

| method | limit/base | current | history1 | history2 |
|---------------|-------------|--------------------|-------------|-------------|
| Sample Number | Client Info | GFL0091616 | GFL0077588 | GFL0077633 |
| Sample Date | Client Info | 19 Sep 2023 | 29 Jun 2023 | 05 Jun 2023 |
| Machine Age | hrs | 170522 | 12790 | 12608 |
| Oil Age | hrs | 33105 | 187 | 600 |
| Oil Changed | Client Info | Changed | Changed | Changed |
| Sample Status | | NORMAL | ABNORMAL | SEVERE |

CONTAMINATION

| method | limit/base | current | history1 | history2 |
|--------|------------|------------|----------|----------|
| Glycol | WC Method | NEG | NEG | NEG |

WEAR METALS

| method | limit/base | current | history1 | history2 | |
|-----------|------------|--------------------|--------------|----------|----|
| Iron | ppm | ASTM D5185(m) >80 | 34 | 13 | 25 |
| Chromium | ppm | ASTM D5185(m) >5 | 2 | <1 | <1 |
| Nickel | ppm | ASTM D5185(m) >2 | <1 | 0 | <1 |
| Titanium | ppm | ASTM D5185(m) | 0 | 0 | 0 |
| Silver | ppm | ASTM D5185(m) >3 | <1 | <1 | 0 |
| Aluminum | ppm | ASTM D5185(m) >30 | 6 | 4 | 5 |
| Lead | ppm | ASTM D5185(m) >30 | 0 | 0 | 0 |
| Copper | ppm | ASTM D5185(m) >150 | 2 | <1 | 1 |
| Tin | ppm | ASTM D5185(m) >5 | 0 | 0 | 0 |
| Antimony | ppm | ASTM D5185(m) | 0 | 0 | 0 |
| Vanadium | ppm | ASTM D5185(m) | 0 | 0 | 0 |
| Beryllium | ppm | ASTM D5185(m) | 0 | 0 | 0 |
| Cadmium | ppm | ASTM D5185(m) | 0 | 0 | 0 |

ADDITIVES

| method | limit/base | current | history1 | history2 | |
|------------|------------|--------------------|--------------|----------|------|
| Boron | ppm | ASTM D5185(m) 0 | 2 | 2 | 2 |
| Barium | ppm | ASTM D5185(m) 0 | <1 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185(m) 60 | 60 | 54 | 49 |
| Manganese | ppm | ASTM D5185(m) 0 | 0 | <1 | <1 |
| Magnesium | ppm | ASTM D5185(m) 1010 | 963 | 874 | 784 |
| Calcium | ppm | ASTM D5185(m) 1070 | 1057 | 963 | 874 |
| Phosphorus | ppm | ASTM D5185(m) 1150 | 1002 | 985 | 856 |
| Zinc | ppm | ASTM D5185(m) 1270 | 1204 | 1092 | 978 |
| Sulfur | ppm | ASTM D5185(m) 2060 | 2445 | 2375 | 1974 |
| Lithium | ppm | ASTM D5185(m) | <1 | <1 | <1 |

CONTAMINANTS

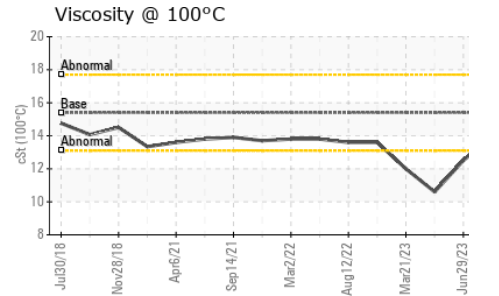
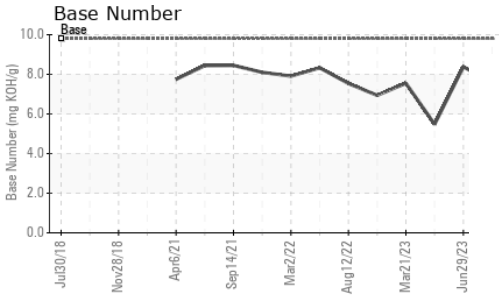
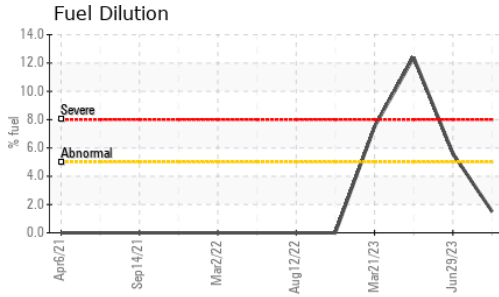
| method | limit/base | current | history1 | history2 | |
|-----------|------------|-------------------|------------|----------|--------|
| Silicon | ppm | ASTM D5185(m) >20 | 13 | 5 | 4 |
| Sodium | ppm | ASTM D5185(m) | 8 | 5 | 7 |
| Potassium | ppm | ASTM D5185(m) >20 | 1 | <1 | 1 |
| Fuel | % | ASTM D7593* >5 | 1.5 | ▲ 5.6 | ■ 12.4 |

INFRA-RED

| method | limit/base | current | history1 | history2 | |
|-----------|------------|-----------------|-------------|----------|------|
| Soot % | % | ASTM D7844* >3 | 0.7 | 0.4 | 1 |
| Nitration | Abs/cm | ASTM D7624* >20 | 9.9 | 8.0 | 11.5 |
| Sulfation | Abs/.1mm | ASTM D7415* >30 | 21.9 | 21.1 | 24.8 |



OIL ANALYSIS REPORT

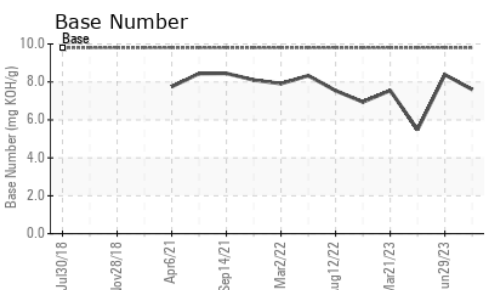
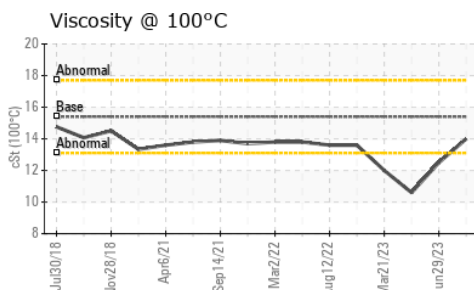
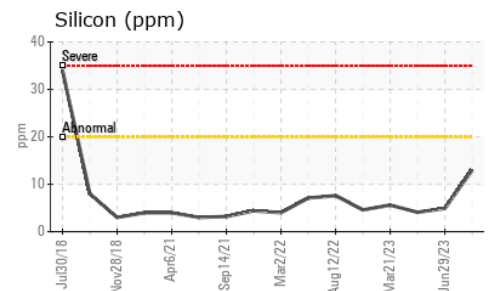
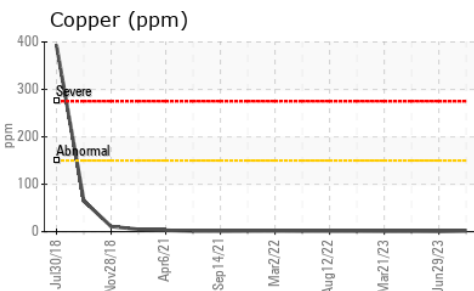
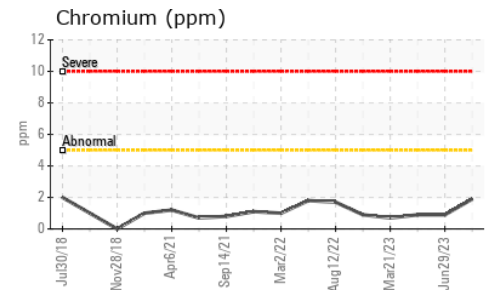
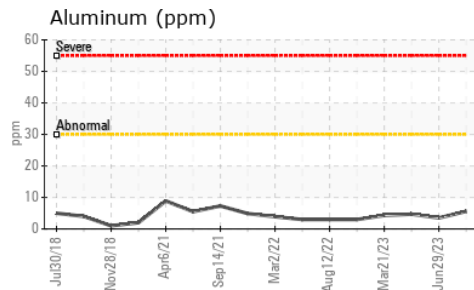
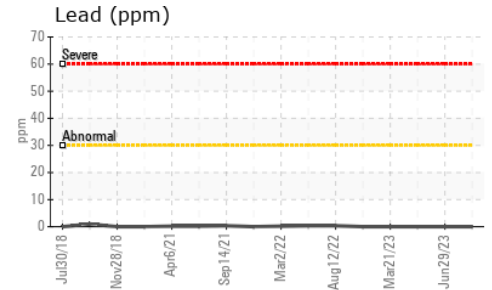
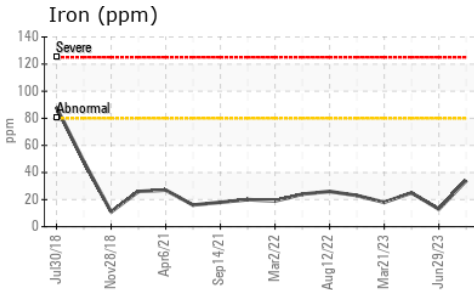


| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|-------------------|----------|-------------|------------|-------------|----------|----------|
| Oxidation | Abs./1mm | ASTM D7414* | >25 | 19.5 | 18.7 | 25.4 |
| Base Number (BN) | mg KOH/g | ASTM D2896* | 9.8 | 7.60 | 8.38 | 5.48 |

| VISUAL | | method | limit/base | current | history1 | history2 |
|------------------|--------|---------|------------|------------|----------|----------|
| Emulsified Water | scalar | Visual* | >0.2 | NEG | NEG | NEG |
| Free Water | scalar | Visual* | | NEG | NEG | NEG |

| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|------------------|-----|---------------|------------|-------------|----------|----------|
| Visc @ 100°C | cSt | ASTM D7279(m) | 15.4 | 14.0 | ▲ 12.5 | ● 10.6 |

GRAPHS



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 GFL Environmental - 550 - Rocky View County
Sample No. : GFL0091616 **Received** : 05 Oct 2023
Lab Number : 02586981 **Diagnosed** : 06 Oct 2023
Unique Number : 5656047 **Diagnostician** : Wes Davis
Test Package : MOB 2 (Additional Tests: PercentFuel)

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.

Contact: GFL Calgary
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 T: (403)369-6163