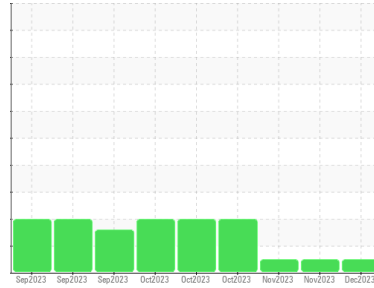




# OIL ANALYSIS REPORT

Sample Rating Trend



**NORMAL**



Machine Id  
**914032**

Component  
**Diesel Engine**

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

## DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

### Wear

Metal levels are typical for a new component breaking in.

### 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 suitable for further service.

## SAMPLE INFORMATION

| method        | limit/base  | current            | history1    | history2    |
|---------------|-------------|--------------------|-------------|-------------|
| Sample Number | Client Info | <b>GFL0102998</b>  | GFL0103012  | GFL0098840  |
| Sample Date   | Client Info | <b>14 Dec 2023</b> | 22 Nov 2023 | 03 Nov 2023 |
| Machine Age   | hrs         | <b>966</b>         | 818         | 710         |
| Oil Age       | hrs         | <b>0</b>           | 108         | 148         |
| Oil Changed   | Client Info | <b>Changed</b>     | Changed     | Changed     |
| Sample Status |             | <b>NORMAL</b>      | NORMAL      | NORMAL      |

## CONTAMINATION

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

## WEAR METALS

| method   | limit/base           | current      | history1 | history2 |
|----------|----------------------|--------------|----------|----------|
| Iron     | ppm ASTM D5185m >100 | <b>16</b>    | 14       | 7        |
| Chromium | ppm ASTM D5185m >20  | <b>&lt;1</b> | <1       | <1       |
| Nickel   | ppm ASTM D5185m >4   | <b>3</b>     | 2        | <1       |
| Titanium | ppm ASTM D5185m      | <b>0</b>     | <1       | 0        |
| Silver   | ppm ASTM D5185m >3   | <b>&lt;1</b> | 1        | 1        |
| Aluminum | ppm ASTM D5185m >20  | <b>2</b>     | 2        | 2        |
| Lead     | ppm ASTM D5185m >40  | <b>3</b>     | <1       | 0        |
| Copper   | ppm ASTM D5185m >330 | <b>212</b>   | 94       | 64       |
| Tin      | ppm ASTM D5185m >15  | <b>&lt;1</b> | 1        | <1       |
| Vanadium | ppm ASTM D5185m      | <b>&lt;1</b> | 0        | 0        |
| Cadmium  | ppm ASTM D5185m      | <b>0</b>     | <1       | 0        |

## ADDITIVES

| method     | limit/base           | current      | history1 | history2 |
|------------|----------------------|--------------|----------|----------|
| Boron      | ppm ASTM D5185m 0    | <b>8</b>     | 11       | 15       |
| Barium     | ppm ASTM D5185m 0    | <b>0</b>     | 0        | 0        |
| Molybdenum | ppm ASTM D5185m 60   | <b>61</b>    | 66       | 61       |
| Manganese  | ppm ASTM D5185m 0    | <b>&lt;1</b> | 1        | <1       |
| Magnesium  | ppm ASTM D5185m 1010 | <b>920</b>   | 941      | 934      |
| Calcium    | ppm ASTM D5185m 1070 | <b>1005</b>  | 1082     | 1018     |
| Phosphorus | ppm ASTM D5185m 1150 | <b>884</b>   | 968      | 1064     |
| Zinc       | ppm ASTM D5185m 1270 | <b>1211</b>  | 1196     | 1240     |
| Sulfur     | ppm ASTM D5185m 2060 | <b>2720</b>  | 2716     | 3049     |

## CONTAMINANTS

| method    | limit/base          | current   | history1 | history2 |
|-----------|---------------------|-----------|----------|----------|
| Silicon   | ppm ASTM D5185m >25 | <b>11</b> | 14       | 12       |
| Sodium    | ppm ASTM D5185m     | <b>2</b>  | 0        | 1        |
| Potassium | ppm ASTM D5185m >20 | <b>6</b>  | 7        | 1        |

## INFRA-RED

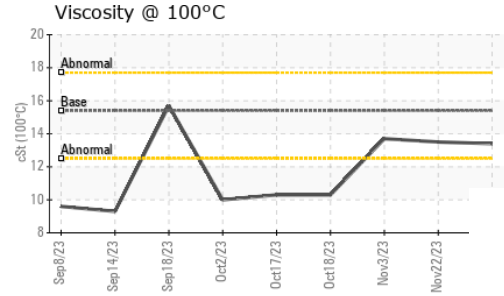
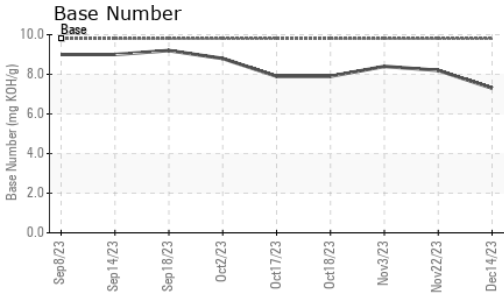
| method    | limit/base               | current     | history1 | history2 |
|-----------|--------------------------|-------------|----------|----------|
| Soot %    | % *ASTM D7844 >3         | <b>0.4</b>  | 0.3      | 0.2      |
| Nitration | Abs/cm *ASTM D7624 >20   | <b>7.4</b>  | 6.6      | 5.7      |
| Sulfation | Abs/.1mm *ASTM D7415 >30 | <b>19.9</b> | 19.5     | 19.0     |

## FLUID DEGRADATION

| method           | limit/base               | current     | history1 | history2 |
|------------------|--------------------------|-------------|----------|----------|
| Oxidation        | Abs/.1mm *ASTM D7414 >25 | <b>15.5</b> | 15.1     | 14.6     |
| Base Number (BN) | mg KOH/g ASTM D2896 9.8  | <b>7.3</b>  | 8.2      | 8.4      |



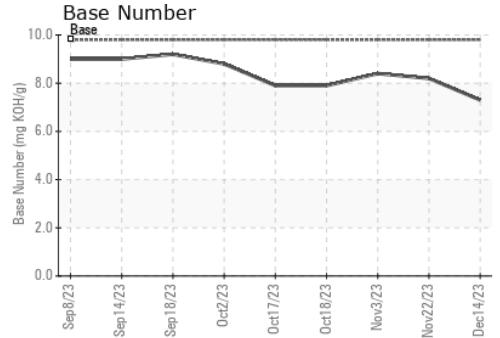
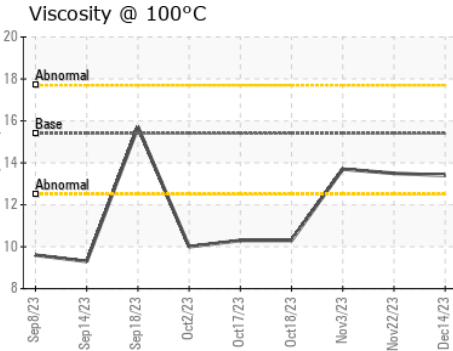
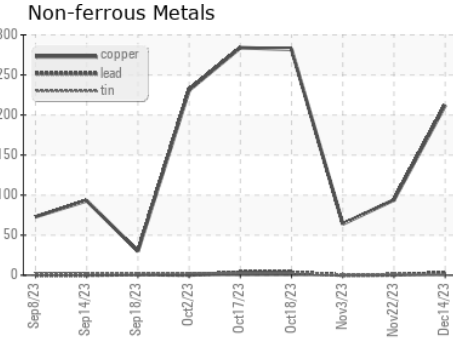
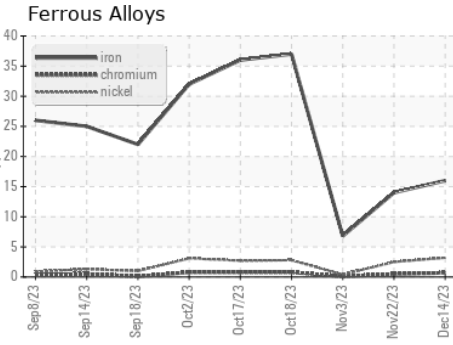
# OIL ANALYSIS REPORT



| 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  | 15.4    | <b>13.4</b> | 13.5     | 13.7 |

## GRAPHS



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : GFL0102998 **Received** : 19 Dec 2023  
**Lab Number** : **06039945** **Diagnosed** : 20 Dec 2023  
**Unique Number** : 10795174 **Diagnostician** : Wes Davis  
**Test Package** : FLEET

**GFL Environmental - 814 - Little Rock Hauling**  
 4005 Hwy 161 N.  
 Little Rock, AR  
 US 72117  
 Contact: Brad Manager

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)

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F: