



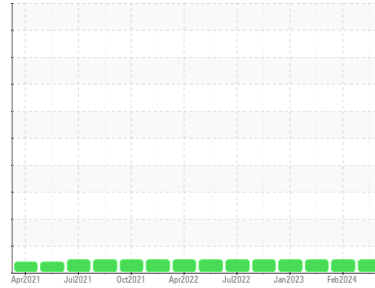
# OIL ANALYSIS REPORT

Sample Rating Trend

**NORMAL**



Area  
**(43346HA)**  
Machine Id  
**811004**  
Component  
**Diesel Engine**  
Fluid  
**PETRO CANADA DURON SHP 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 suitable for further service.

## SAMPLE INFORMATION

| method        | limit/base  | current            | history1    | history2    |
|---------------|-------------|--------------------|-------------|-------------|
| Sample Number | Client Info | <b>GFL0058052</b>  | GFL0058087  | GFL0058123  |
| Sample Date   | Client Info | <b>13 Mar 2024</b> | 28 Feb 2024 | 16 Nov 2023 |
| Machine Age   | hrs         | <b>4983</b>        | 4891        | 4413        |
| Oil Age       | hrs         | <b>0</b>           | 478         | 224         |
| Oil Changed   | Client Info | <b>Changed</b>     | N/A         | Changed     |
| Sample Status |             | <b>NORMAL</b>      | NORMAL      | NORMAL      |

## CONTAMINATION

| method | limit/base     | current        | history1 | history2 |
|--------|----------------|----------------|----------|----------|
| Fuel   | WC Method >3.0 | <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 >120 | <b>15</b>    | 17       | 25       |
| Chromium | ppm ASTM D5185m >20  | <b>1</b>     | 1        | 1        |
| Nickel   | ppm ASTM D5185m >5   | <b>3</b>     | 3        | 3        |
| Titanium | ppm ASTM D5185m >2   | <b>&lt;1</b> | <1       | <1       |
| Silver   | ppm ASTM D5185m >2   | <b>&lt;1</b> | 0        | 0        |
| Aluminum | ppm ASTM D5185m >20  | <b>3</b>     | 4        | 5        |
| Lead     | ppm ASTM D5185m >40  | <b>2</b>     | 0        | 0        |
| Copper   | ppm ASTM D5185m >330 | <b>9</b>     | 9        | 14       |
| Tin      | ppm ASTM D5185m >15  | <b>1</b>     | <1       | <1       |
| Vanadium | ppm ASTM D5185m      | <b>&lt;1</b> | 0        | <1       |
| Cadmium  | ppm ASTM D5185m      | <b>&lt;1</b> | 0        | 0        |

## ADDITIVES

| method     | limit/base           | current     | history1 | history2 |
|------------|----------------------|-------------|----------|----------|
| Boron      | ppm ASTM D5185m 0    | <b>4</b>    | 4        | 5        |
| Barium     | ppm ASTM D5185m 0    | <b>0</b>    | 0        | 0        |
| Molybdenum | ppm ASTM D5185m 60   | <b>56</b>   | 63       | 57       |
| Manganese  | ppm ASTM D5185m 0    | <b>1</b>    | <1       | 1        |
| Magnesium  | ppm ASTM D5185m 1010 | <b>970</b>  | 979      | 838      |
| Calcium    | ppm ASTM D5185m 1070 | <b>1153</b> | 1051     | 1047     |
| Phosphorus | ppm ASTM D5185m 1150 | <b>999</b>  | 964      | 876      |
| Zinc       | ppm ASTM D5185m 1270 | <b>1273</b> | 1263     | 1129     |
| Sulfur     | ppm ASTM D5185m 2060 | <b>3291</b> | 2925     | 2318     |

## CONTAMINANTS

| method    | limit/base          | current  | history1 | history2 |
|-----------|---------------------|----------|----------|----------|
| Silicon   | ppm ASTM D5185m >25 | <b>4</b> | 4        | 4        |
| Sodium    | ppm ASTM D5185m     | <b>5</b> | 5        | 8        |
| Potassium | ppm ASTM D5185m >20 | <b>3</b> | 2        | 3        |

## INFRA-RED

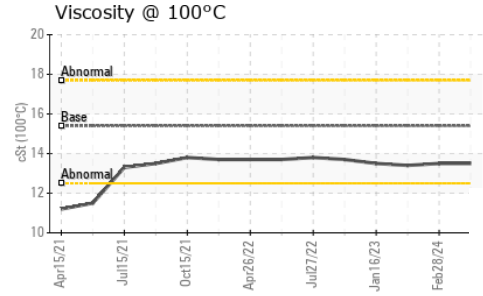
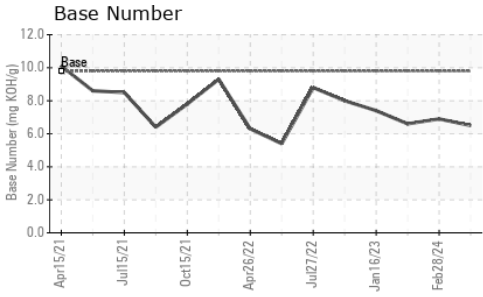
| method    | limit/base               | current     | history1 | history2 |
|-----------|--------------------------|-------------|----------|----------|
| Soot %    | % *ASTM D7844 >4         | <b>0.5</b>  | 0.4      | 0.5      |
| Nitration | Abs/cm *ASTM D7624 >20   | <b>8.2</b>  | 7.8      | 9.3      |
| Sulfation | Abs/.1mm *ASTM D7415 >30 | <b>20.0</b> | 19.5     | 20.4     |

## FLUID DEGRADATION

| method           | limit/base               | current     | history1 | history2 |
|------------------|--------------------------|-------------|----------|----------|
| Oxidation        | Abs/.1mm *ASTM D7414 >25 | <b>15.7</b> | 15.4     | 15.3     |
| Base Number (BN) | mg KOH/g ASTM D2896 9.8  | <b>6.5</b>  | 6.9      | 6.6      |



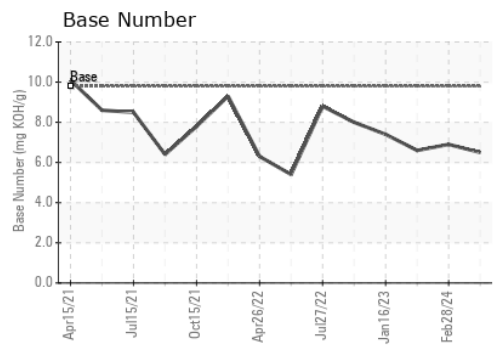
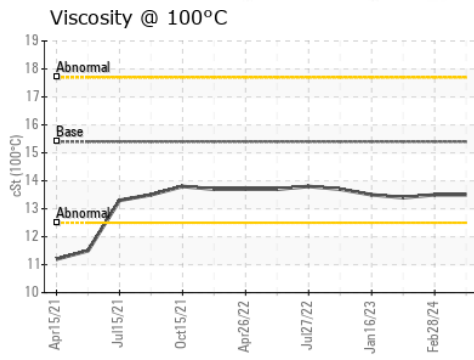
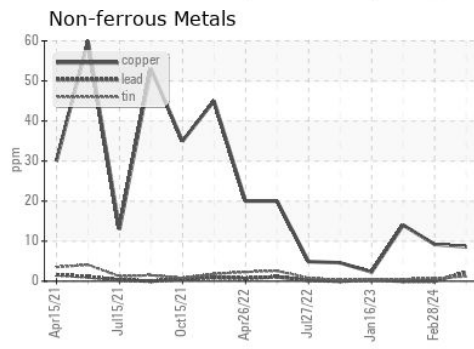
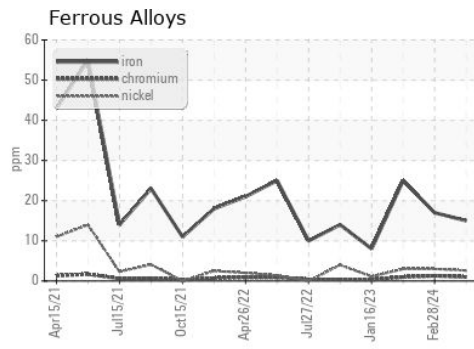
# OIL ANALYSIS REPORT



| 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    | 13.5     | 13.4     |

## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : GFL0058052 **Received** : 14 Mar 2024  
**Lab Number** : 06118806 **Tested** : 15 Mar 2024  
**Unique Number** : 10927639 **Diagnosed** : 15 Mar 2024 - Wes Davis  
**Test Package** : FLEET

**GFL Environmental - 657 - Charlottesville Hauling**  
 5498 Richmond Road  
 Troy, VA  
 US 22974  
 Contact: Brian Ulickas  
 bulickas@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)