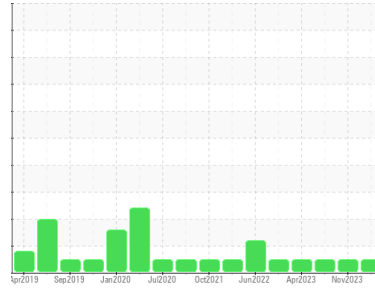




# OIL ANALYSIS REPORT

Sample Rating Trend



**NORMAL**



Machine Id  
**829066-101270**

Component  
**Diesel Engine**

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

## 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>GFL0101956</b>  | GFL0101966  | GFL0081471  |
| Sample Date   | Client Info |             | <b>25 Dec 2023</b> | 30 Nov 2023 | 22 May 2023 |
| Machine Age   | hrs         | Client Info | <b>67138</b>       | 67004       | 355856      |
| Oil Age       | hrs         | Client Info | <b>0</b>           | 0           | 650         |
| Oil Changed   | Client Info |             | <b>Not Changed</b> | Not 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>21</b>    | 11       | 91       |
| Chromium | ppm    | ASTM D5185m >20  | <b>&lt;1</b> | 0        | 3        |
| Nickel   | ppm    | ASTM D5185m >4   | <b>0</b>     | 0        | <1       |
| Titanium | ppm    | ASTM D5185m      | <b>&lt;1</b> | 0        | 1        |
| Silver   | ppm    | ASTM D5185m >3   | <b>0</b>     | 0        | <1       |
| Aluminum | ppm    | ASTM D5185m >20  | <b>3</b>     | 1        | 12       |
| Lead     | ppm    | ASTM D5185m >40  | <b>0</b>     | 0        | <1       |
| Copper   | ppm    | ASTM D5185m >330 | <b>2</b>     | <1       | 22       |
| Tin      | ppm    | ASTM D5185m >15  | <b>0</b>     | 0        | <1       |
| Vanadium | ppm    | ASTM D5185m      | <b>0</b>     | 0        | <1       |
| Cadmium  | ppm    | ASTM D5185m      | <b>0</b>     | 0        | 0        |

## ADDITIVES

|            | method | limit/base       | current      | history1 | history2 |
|------------|--------|------------------|--------------|----------|----------|
| Boron      | ppm    | ASTM D5185m 0    | <b>4</b>     | 3        | 32       |
| Barium     | ppm    | ASTM D5185m 0    | <b>&lt;1</b> | 0        | 0        |
| Molybdenum | ppm    | ASTM D5185m 60   | <b>58</b>    | 57       | 22       |
| Manganese  | ppm    | ASTM D5185m 0    | <b>&lt;1</b> | 0        | 2        |
| Magnesium  | ppm    | ASTM D5185m 1010 | <b>882</b>   | 937      | 335      |
| Calcium    | ppm    | ASTM D5185m 1070 | <b>1073</b>  | 1106     | 1866     |
| Phosphorus | ppm    | ASTM D5185m 1150 | <b>1033</b>  | 856      | 949      |
| Zinc       | ppm    | ASTM D5185m 1270 | <b>1226</b>  | 1215     | 1243     |
| Sulfur     | ppm    | ASTM D5185m 2060 | <b>2883</b>  | 2941     | 3517     |

## CONTAMINANTS

|           | method | limit/base      | current  | history1 | history2 |
|-----------|--------|-----------------|----------|----------|----------|
| Silicon   | ppm    | ASTM D5185m >25 | <b>4</b> | 2        | 13       |
| Sodium    | ppm    | ASTM D5185m     | <b>6</b> | 2        | 8        |
| Potassium | ppm    | ASTM D5185m >20 | <b>0</b> | 0        | 7        |

## INFRA-RED

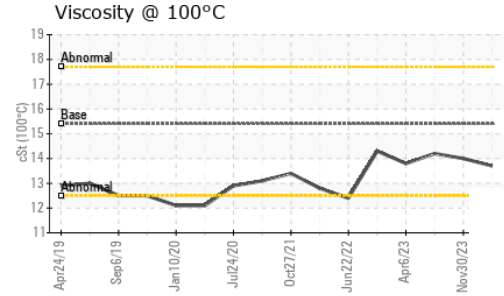
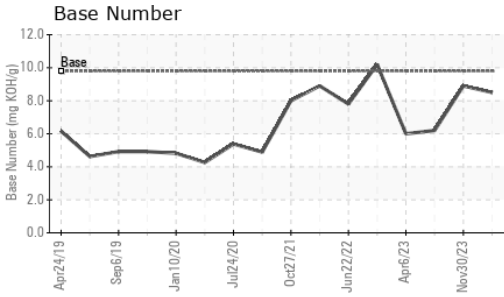
|           | method   | limit/base      | current     | history1 | history2 |
|-----------|----------|-----------------|-------------|----------|----------|
| Soot %    | %        | *ASTM D7844 >3  | <b>0.6</b>  | 0.5      | 2        |
| Nitration | Abs/cm   | *ASTM D7624 >20 | <b>7.9</b>  | 6.4      | 12.6     |
| Sulfation | Abs/.1mm | *ASTM D7415 >30 | <b>19.8</b> | 18.3     | 27.4     |

## FLUID DEGRADATION

|                  | method   | limit/base      | current     | history1 | history2 |
|------------------|----------|-----------------|-------------|----------|----------|
| Oxidation        | Abs/.1mm | *ASTM D7414 >25 | <b>15.2</b> | 13.7     | 20.6     |
| Base Number (BN) | mg KOH/g | ASTM D2896 9.8  | <b>8.5</b>  | 8.9      | 6.2      |



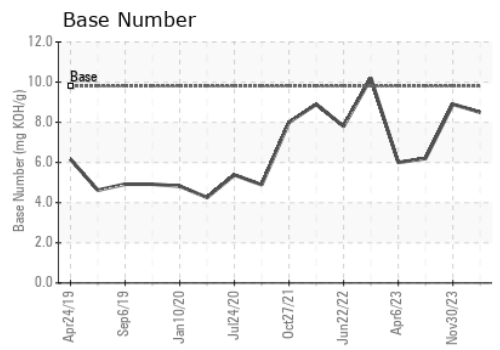
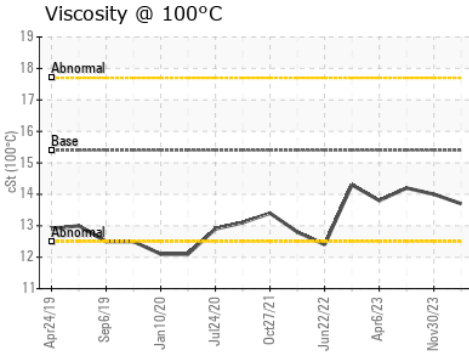
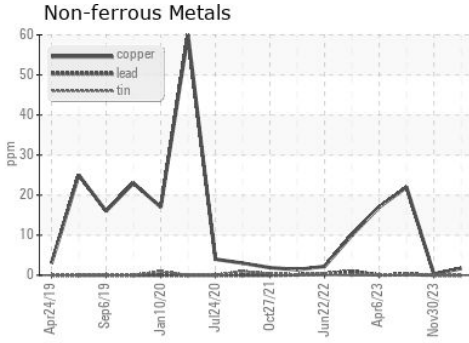
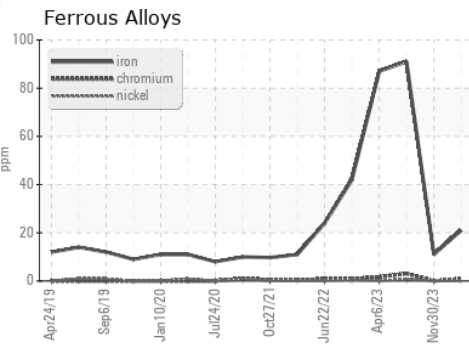
# OIL ANALYSIS REPORT



| 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>13.7</b> | 14.0     | 14.2 |

## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : GFL0101956 **Received** : 26 Dec 2023  
**Lab Number** : **06044305** **Diagnosed** : 27 Dec 2023  
**Unique Number** : 10804913 **Diagnostician** : Wes Davis  
**Test Package** : FLEET

**GFL Environmental - 893 - OK East Hauling**  
 2100 Lilly Street  
 Seminole, OK  
 US 74868  
 Contact: Roger Barlow  
 rbarlow@gflenv.com  
 T: (405)204-6183  
 F:

Certificate L2367  
 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)