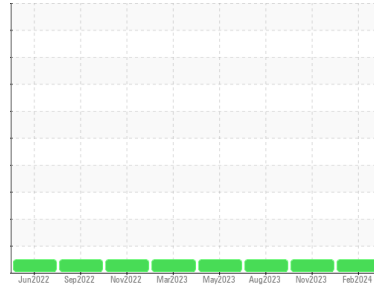




# OIL ANALYSIS REPORT

Sample Rating Trend

**NORMAL**



Machine Id  
**410021**

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>GFL0104573</b>  | GFL0092610  | GFL0092633  |
| Sample Date   | Client Info |             | <b>23 Feb 2024</b> | 29 Nov 2023 | 30 Aug 2023 |
| Machine Age   | hrs         | Client Info | <b>7373</b>        | 6812        | 6356        |
| Oil Age       | hrs         | Client Info | <b>580</b>         | 456         | 604         |
| Oil Changed   | Client Info |             | <b>Changed</b>     | Not Changd  | 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>6</b>     | 11       | 13       |
| Chromium | ppm    | ASTM D5185m >20  | <b>&lt;1</b> | <1       | 1        |
| Nickel   | ppm    | ASTM D5185m >4   | <b>0</b>     | 0        | 0        |
| Titanium | ppm    | ASTM D5185m      | <b>0</b>     | <1       | 0        |
| Silver   | ppm    | ASTM D5185m >3   | <b>0</b>     | 0        | <1       |
| Aluminum | ppm    | ASTM D5185m >20  | <b>1</b>     | 1        | 0        |
| Lead     | ppm    | ASTM D5185m >40  | <b>&lt;1</b> | <1       | 2        |
| Copper   | ppm    | ASTM D5185m >330 | <b>0</b>     | <1       | 1        |
| 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>2</b>     | 3        | 1        |
| Barium     | ppm    | ASTM D5185m 0    | <b>0</b>     | 0        | 0        |
| Molybdenum | ppm    | ASTM D5185m 60   | <b>57</b>    | 61       | 61       |
| Manganese  | ppm    | ASTM D5185m 0    | <b>&lt;1</b> | 0        | <1       |
| Magnesium  | ppm    | ASTM D5185m 1010 | <b>933</b>   | 935      | 1143     |
| Calcium    | ppm    | ASTM D5185m 1070 | <b>1005</b>  | 1063     | 1239     |
| Phosphorus | ppm    | ASTM D5185m 1150 | <b>996</b>   | 1066     | 1069     |
| Zinc       | ppm    | ASTM D5185m 1270 | <b>1239</b>  | 1224     | 1387     |
| Sulfur     | ppm    | ASTM D5185m 2060 | <b>2845</b>  | 3227     | 3840     |

## CONTAMINANTS

|           | method | limit/base      | current  | history1 | history2 |
|-----------|--------|-----------------|----------|----------|----------|
| Silicon   | ppm    | ASTM D5185m >25 | <b>4</b> | 4        | 4        |
| Sodium    | ppm    | ASTM D5185m     | <b>3</b> | 2        | 5        |
| Potassium | ppm    | ASTM D5185m >20 | <b>0</b> | 5        | 6        |

## INFRA-RED

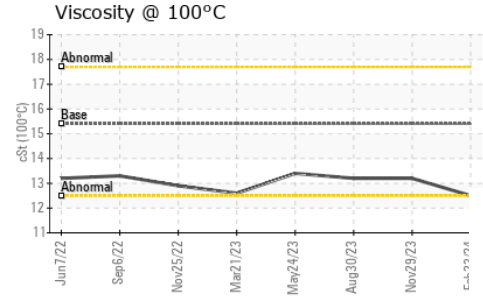
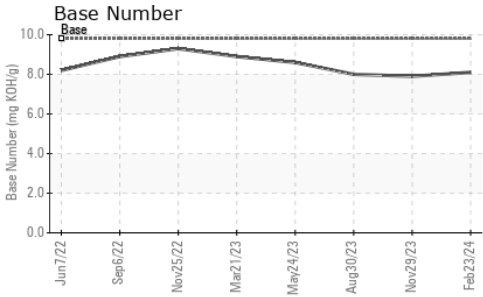
|           | method   | limit/base      | current     | history1 | history2 |
|-----------|----------|-----------------|-------------|----------|----------|
| Soot %    | %        | *ASTM D7844 >3  | <b>0.2</b>  | 0.2      | 0.3      |
| Nitration | Abs/cm   | *ASTM D7624 >20 | <b>8.0</b>  | 7.7      | 8.1      |
| Sulfation | Abs/.1mm | *ASTM D7415 >30 | <b>19.0</b> | 19.0     | 19.4     |

## FLUID DEGRADATION

|                  | method   | limit/base      | current     | history1 | history2 |
|------------------|----------|-----------------|-------------|----------|----------|
| Oxidation        | Abs/.1mm | *ASTM D7414 >25 | <b>15.4</b> | 15.4     | 15.8     |
| Base Number (BN) | mg KOH/g | ASTM D2896 9.8  | <b>8.1</b>  | 7.9      | 8.0      |



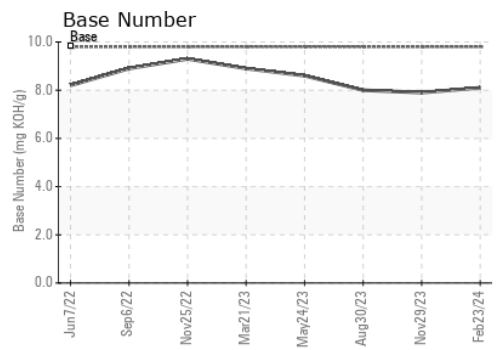
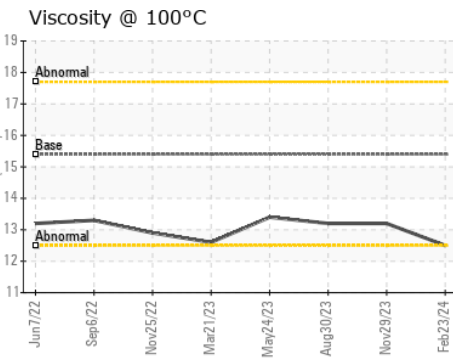
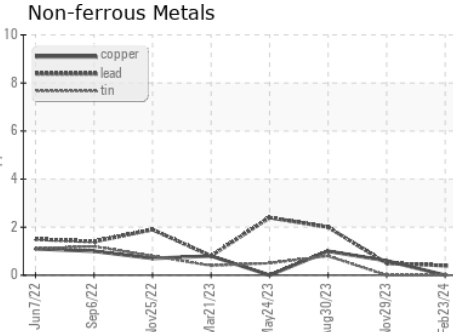
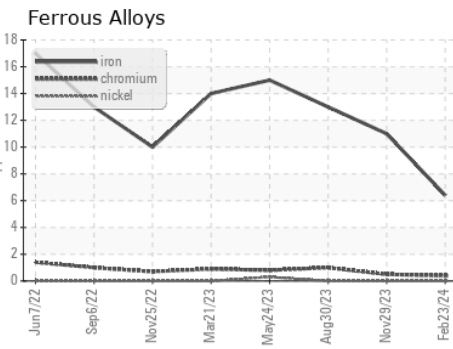
# OIL ANALYSIS REPORT



| 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>12.5</b> | 13.2     | 13.2 |

## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : GFL0104573  
**Lab Number** : **06103634**  
**Unique Number** : 10901864  
**Test Package** : FLEET  
**Received** : 28 Feb 2024  
**Tested** : 29 Feb 2024  
**Diagnosed** : 29 Feb 2024 - Wes Davis

**GFL Environmental - 947 - WB Horicon HC**  
 N7296 County Rd V  
 Horicon, WI  
 US 53032  
 Contact: Tim Kieffer  
 tim.kieffer@gflenv.com  
 T: (608)219-0288  
 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)