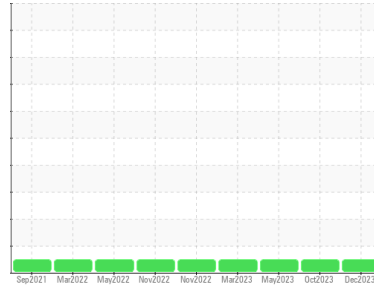




# OIL ANALYSIS REPORT

Sample Rating Trend

**NORMAL**



Machine Id  
**721032-362019**

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>GFL0101962</b>  | GFL0078378  | GFL0078365  |
| Sample Date   | Client Info |             | <b>18 Dec 2023</b> | 25 Oct 2023 | 17 May 2023 |
| Machine Age   | hrs         | Client Info | <b>3716</b>        | 3570        | 2963        |
| Oil Age       | hrs         | Client Info | <b>146</b>         | 607         | 460         |
| Oil Changed   | Client Info |             | <b>Not 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>4</b>     | 12       | 14       |
| 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>&lt;1</b> | <1       | <1       |
| Silver   | ppm    | ASTM D5185m >3   | <b>0</b>     | <1       | <1       |
| Aluminum | ppm    | ASTM D5185m >20  | <b>2</b>     | 6        | 4        |
| Lead     | ppm    | ASTM D5185m >40  | <b>&lt;1</b> | 0        | <1       |
| Copper   | ppm    | ASTM D5185m >330 | <b>&lt;1</b> | <1       | 19       |
| Tin      | ppm    | ASTM D5185m >15  | <b>0</b>     | 0        | <1       |
| Vanadium | ppm    | ASTM D5185m      | <b>&lt;1</b> | 0        | 0        |
| Cadmium  | ppm    | ASTM D5185m      | <b>0</b>     | 0        | 0        |

## ADDITIVES

|            | method | limit/base       | current     | history1 | history2 |
|------------|--------|------------------|-------------|----------|----------|
| Boron      | ppm    | ASTM D5185m 0    | <b>2</b>    | 5        | 10       |
| Barium     | ppm    | ASTM D5185m 0    | <b>0</b>    | 4        | 0        |
| Molybdenum | ppm    | ASTM D5185m 60   | <b>57</b>   | 61       | 70       |
| Manganese  | ppm    | ASTM D5185m 0    | <b>0</b>    | <1       | <1       |
| Magnesium  | ppm    | ASTM D5185m 1010 | <b>894</b>  | 847      | 951      |
| Calcium    | ppm    | ASTM D5185m 1070 | <b>1016</b> | 912      | 1149     |
| Phosphorus | ppm    | ASTM D5185m 1150 | <b>925</b>  | 991      | 1013     |
| Zinc       | ppm    | ASTM D5185m 1270 | <b>1152</b> | 1119     | 1244     |
| Sulfur     | ppm    | ASTM D5185m 2060 | <b>2962</b> | 2554     | 3384     |

## CONTAMINANTS

|           | method | limit/base      | current  | history1 | history2 |
|-----------|--------|-----------------|----------|----------|----------|
| Silicon   | ppm    | ASTM D5185m >25 | <b>3</b> | 4        | 3        |
| Sodium    | ppm    | ASTM D5185m     | <b>2</b> | 6        | 6        |
| Potassium | ppm    | ASTM D5185m >20 | <b>2</b> | 8        | 2        |

## INFRA-RED

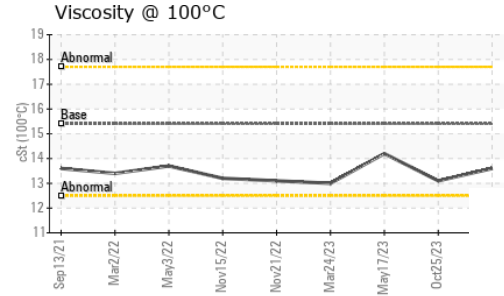
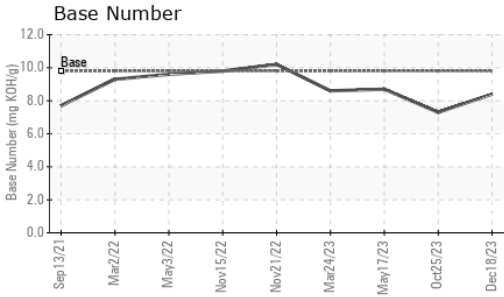
|           | method   | limit/base      | current     | history1 | history2 |
|-----------|----------|-----------------|-------------|----------|----------|
| Soot %    | %        | *ASTM D7844 >3  | <b>0.2</b>  | 0.5      | 1.1      |
| Nitration | Abs/cm   | *ASTM D7624 >20 | <b>5.9</b>  | 8.8      | 8.4      |
| Sulfation | Abs/.1mm | *ASTM D7415 >30 | <b>18.1</b> | 19.8     | 21.0     |

## FLUID DEGRADATION

|                  | method   | limit/base      | current     | history1 | history2 |
|------------------|----------|-----------------|-------------|----------|----------|
| Oxidation        | Abs/.1mm | *ASTM D7414 >25 | <b>13.9</b> | 16.5     | 15.4     |
| Base Number (BN) | mg KOH/g | ASTM D2896 9.8  | <b>8.4</b>  | 7.3      | 8.7      |



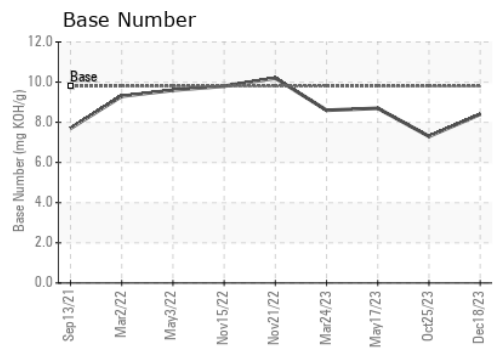
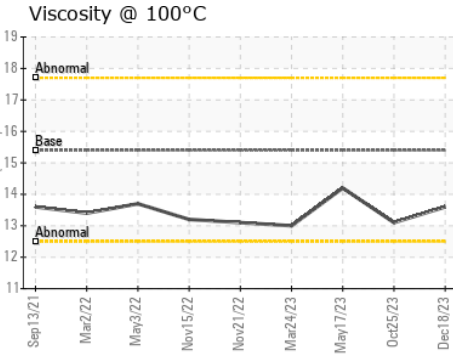
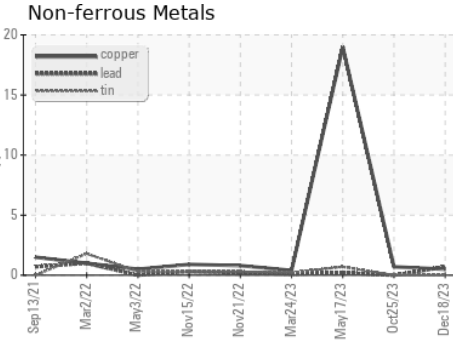
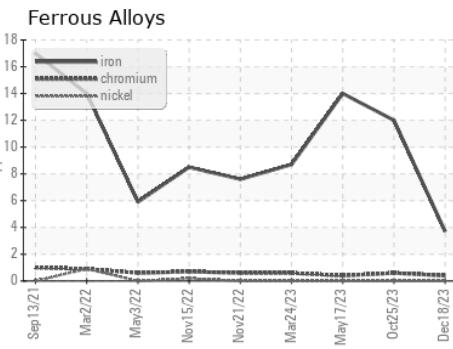
# OIL ANALYSIS REPORT



| 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>13.6</b> | 13.1     | 14.2 |

## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : GFL0101962 **Received** : 20 Dec 2023  
**Lab Number** : **06040372** **Diagnosed** : 21 Dec 2023  
**Unique Number** : 10795601 **Diagnostician** : Sean Felton  
**Test Package** : FLEET ( Additional Tests: FT-IR(Diff) )

**GFL Environmental - 894 - Ada Hauling**  
 1904 North Broadway, Suite D  
 Ada, OK  
 US 74820  
 Contact: Johnny Spurlock  
 jspurlock@gflenv.com  
 T: (405)664-4476  
 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)