



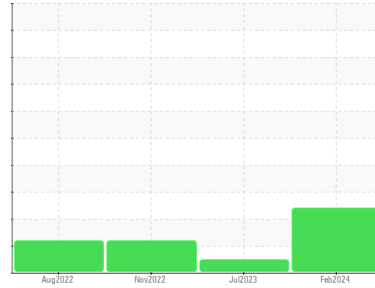
# OIL ANALYSIS REPORT

Sample Rating Trend

GLYCOL



Machine Id  
**921023**  
 Component  
**Diesel Engine**  
 Fluid  
**PETRO CANADA DURON SHP 15W40 (--- GAL)**



## DIAGNOSIS

### Recommendation

We advise that you check for possible coolant leak. Check for low coolant level. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

### Wear

All component wear rates are normal.

### Contamination

Sodium and/or potassium levels are high.

### Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil.

## SAMPLE INFORMATION

| method        | limit/base  | current            | history1    | history2    |
|---------------|-------------|--------------------|-------------|-------------|
| Sample Number | Client Info | <b>GFL0098090</b>  | GFL0071286  | GFL0059828  |
| Sample Date   | Client Info | <b>26 Feb 2024</b> | 25 Jul 2023 | 06 Nov 2022 |
| Machine Age   | hrs         | <b>30204</b>       | 28669       | 0           |
| Oil Age       | hrs         | <b>30204</b>       | 28669       | 0           |
| Oil Changed   | Client Info | <b>Changed</b>     | Not Changd  | Changed     |
| Sample Status |             | <b>ABNORMAL</b>    | NORMAL      | ATTENTION   |

## 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      |

## WEAR METALS

| method   | limit/base           | current      | history1 | history2 |
|----------|----------------------|--------------|----------|----------|
| Iron     | ppm ASTM D5185m >120 | <b>25</b>    | 8        | 54       |
| Chromium | ppm ASTM D5185m >20  | <b>2</b>     | <1       | 1        |
| Nickel   | ppm ASTM D5185m >5   | <b>3</b>     | 0        | <1       |
| Titanium | ppm ASTM D5185m >2   | <b>0</b>     | 0        | 0        |
| Silver   | ppm ASTM D5185m >2   | <b>0</b>     | 0        | 0        |
| Aluminum | ppm ASTM D5185m >20  | <b>6</b>     | 0        | 4        |
| Lead     | ppm ASTM D5185m >40  | <b>2</b>     | <1       | <1       |
| Copper   | ppm ASTM D5185m >330 | <b>2</b>     | 2        | <1       |
| Tin      | ppm ASTM D5185m >15  | <b>1</b>     | <1       | <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>19</b>    | 6        | 14       |
| Barium     | ppm ASTM D5185m 0    | <b>0</b>     | 0        | 0        |
| Molybdenum | ppm ASTM D5185m 60   | <b>110</b>   | 63       | 95       |
| Manganese  | ppm ASTM D5185m 0    | <b>&lt;1</b> | <1       | <1       |
| Magnesium  | ppm ASTM D5185m 1010 | <b>976</b>   | 1002     | 857      |
| Calcium    | ppm ASTM D5185m 1070 | <b>1087</b>  | 1098     | 1103     |
| Phosphorus | ppm ASTM D5185m 1150 | <b>895</b>   | 1066     | 877      |
| Zinc       | ppm ASTM D5185m 1270 | <b>1361</b>  | 1285     | 1094     |
| Sulfur     | ppm ASTM D5185m 2060 | <b>3098</b>  | 3796     | 3183     |

## CONTAMINANTS

| method    | limit/base          | current       | history1 | history2 |
|-----------|---------------------|---------------|----------|----------|
| Silicon   | ppm ASTM D5185m >25 | <b>14</b>     | 4        | 6        |
| Sodium    | ppm ASTM D5185m     | <b>▲ 1140</b> | 49       | ● 164    |
| Potassium | ppm ASTM D5185m >20 | <b>▲ 39</b>   | 7        | 11       |
| Glycol    | % *ASTM D2982       | <b>NEG</b>    | NEG      | NEG      |

## INFRA-RED

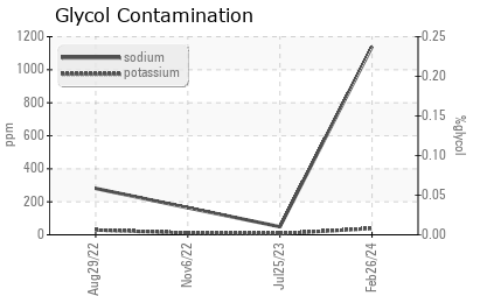
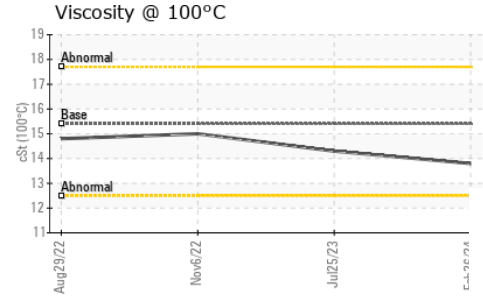
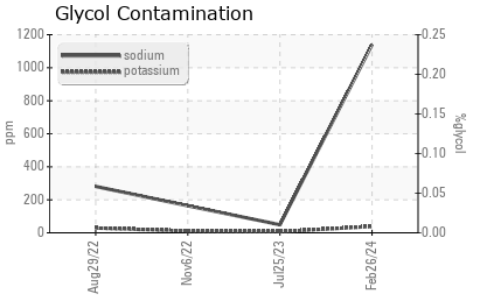
| method    | limit/base               | current     | history1 | history2 |
|-----------|--------------------------|-------------|----------|----------|
| Soot %    | % *ASTM D7844 >4         | <b>0.5</b>  | 0        | 3        |
| Nitration | Abs/cm *ASTM D7624 >20   | <b>13.1</b> | 6.9      | 10.9     |
| Sulfation | Abs/.1mm *ASTM D7415 >30 | <b>21.8</b> | 21.1     | 25.7     |

## FLUID DEGRADATION

| method           | limit/base               | current     | history1 | history2 |
|------------------|--------------------------|-------------|----------|----------|
| Oxidation        | Abs/.1mm *ASTM D7414 >25 | <b>15.7</b> | 14.3     | 16       |
| Base Number (BN) | mg KOH/g ASTM D2896 9.8  | <b>8.7</b>  | 10.1     | 11.6     |



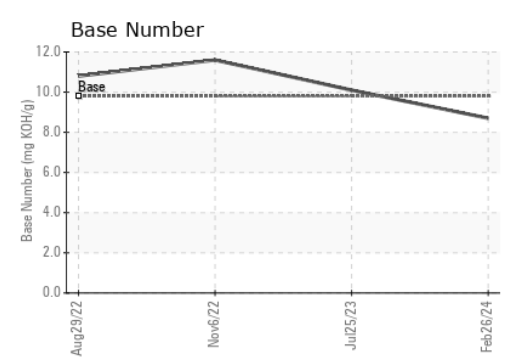
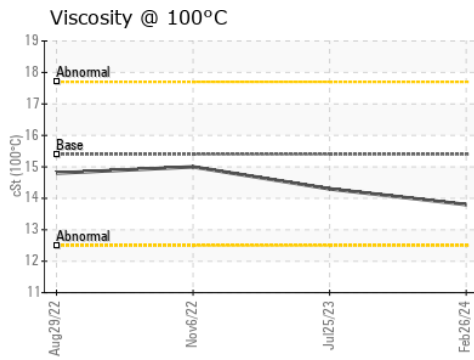
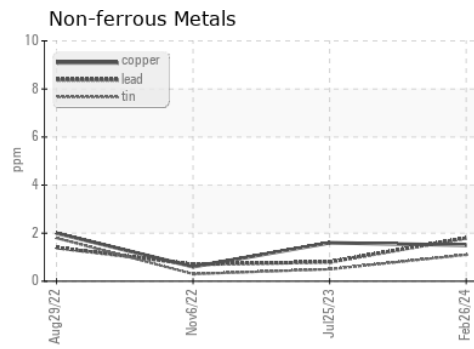
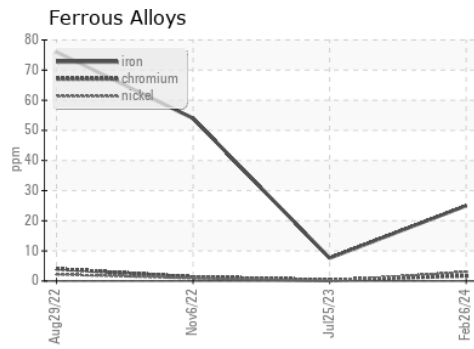
# OIL ANALYSIS REPORT



| 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    | 13.8     | 14.3     |

## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : GFL0098090 **Received** : 29 Feb 2024  
**Lab Number** : 06104193 **Tested** : 04 Mar 2024  
**Unique Number** : 10902423 **Diagnosed** : 04 Mar 2024 - Jonathan Hester  
**Test Package** : FLEET ( Additional Tests: Glycol )

**GFL Environmental - 932 - Muskego HC**  
 W144 S6400 College Ct.  
 Muskego, WI  
 US 53150  
 Contact: Brian Schlomann  
 brian.schlomann@gflenv.com  
 T: (262)510-4586  
 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)