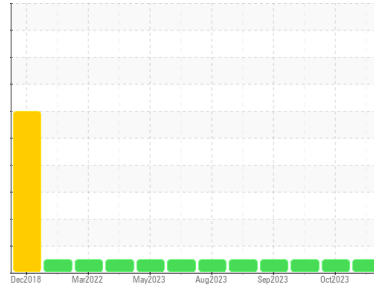




# OIL ANALYSIS REPORT

Sample Rating Trend



**NORMAL**



Machine Id  
**428057-402383**

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>GFL0088209</b>  | GFL0088190  | GFL0088192  |
| Sample Date   | Client Info |             | <b>24 Oct 2023</b> | 05 Oct 2023 | 28 Sep 2023 |
| Machine Age   | mls         | Client Info | <b>439487</b>      | 435026      | 433080      |
| Oil Age       | mls         | Client Info | <b>0</b>           | 0           | 0           |
| Oil Changed   | Client Info |             | <b>Not Changed</b> | Changed     | Not 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     |
| Glycol | WC Method |            | <b>NEG</b>     | NEG      | NEG      |

## WEAR METALS

|          | method | limit/base       | current      | history1 | history2 |
|----------|--------|------------------|--------------|----------|----------|
| Iron     | ppm    | ASTM D5185m >110 | <b>2</b>     | 14       | 13       |
| Chromium | ppm    | ASTM D5185m >4   | <b>&lt;1</b> | 1        | 1        |
| Nickel   | ppm    | ASTM D5185m >2   | <b>&lt;1</b> | 0        | 0        |
| Titanium | ppm    | ASTM D5185m      | <b>0</b>     | <1       | <1       |
| Silver   | ppm    | ASTM D5185m >2   | <b>0</b>     | 0        | 0        |
| Aluminum | ppm    | ASTM D5185m >25  | <b>2</b>     | 7        | 6        |
| Lead     | ppm    | ASTM D5185m >45  | <b>2</b>     | 5        | 2        |
| Copper   | ppm    | ASTM D5185m >85  | <b>&lt;1</b> | <1       | <1       |
| Tin      | ppm    | ASTM D5185m >4   | <b>&lt;1</b> | 1        | 1        |
| Vanadium | ppm    | ASTM D5185m      | <b>0</b>     | 0        | 0        |
| Cadmium  | ppm    | ASTM D5185m      | <b>0</b>     | <1       | <1       |

## ADDITIVES

|            | method | limit/base       | current      | history1 | history2 |
|------------|--------|------------------|--------------|----------|----------|
| Boron      | ppm    | ASTM D5185m 0    | <b>4</b>     | 18       | 23       |
| Barium     | ppm    | ASTM D5185m 0    | <b>0</b>     | 0        | 0        |
| Molybdenum | ppm    | ASTM D5185m 60   | <b>54</b>    | 50       | 50       |
| Manganese  | ppm    | ASTM D5185m 0    | <b>&lt;1</b> | <1       | <1       |
| Magnesium  | ppm    | ASTM D5185m 1010 | <b>869</b>   | 857      | 846      |
| Calcium    | ppm    | ASTM D5185m 1070 | <b>940</b>   | 935      | 926      |
| Phosphorus | ppm    | ASTM D5185m 1150 | <b>1020</b>  | 881      | 864      |
| Zinc       | ppm    | ASTM D5185m 1270 | <b>1144</b>  | 1089     | 1079     |
| Sulfur     | ppm    | ASTM D5185m 2060 | <b>2697</b>  | 2433     | 2431     |

## CONTAMINANTS

|           | method | limit/base      | current  | history1 | history2 |
|-----------|--------|-----------------|----------|----------|----------|
| Silicon   | ppm    | ASTM D5185m >30 | <b>5</b> | 7        | 7        |
| Sodium    | ppm    | ASTM D5185m     | <b>5</b> | 7        | 7        |
| Potassium | ppm    | ASTM D5185m >20 | <b>4</b> | 15       | 15       |

## INFRA-RED

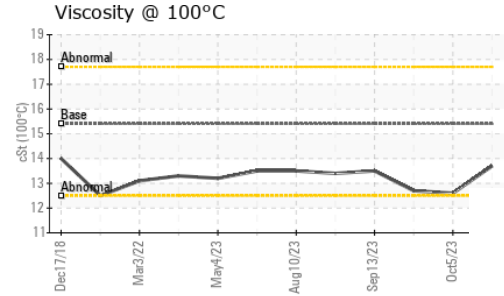
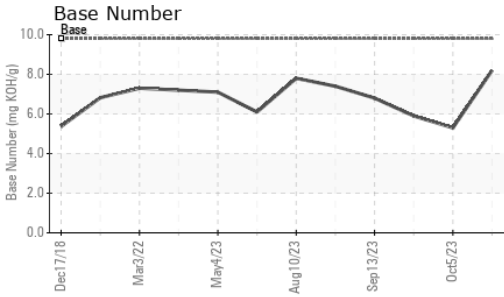
|           | method   | limit/base      | current     | history1 | history2 |
|-----------|----------|-----------------|-------------|----------|----------|
| Soot %    | %        | *ASTM D7844 >3  | <b>0.1</b>  | 0.4      | 0.3      |
| Nitration | Abs/cm   | *ASTM D7624 >20 | <b>7.0</b>  | 10.9     | 10.7     |
| Sulfation | Abs/.1mm | *ASTM D7415 >30 | <b>19.1</b> | 24.0     | 23.3     |

## FLUID DEGRADATION

|                  | method   | limit/base      | current     | history1 | history2 |
|------------------|----------|-----------------|-------------|----------|----------|
| Oxidation        | Abs/.1mm | *ASTM D7414 >25 | <b>15.3</b> | 21.2     | 20.3     |
| Base Number (BN) | mg KOH/g | ASTM D2896 9.8  | <b>8.2</b>  | 5.3      | 5.9      |



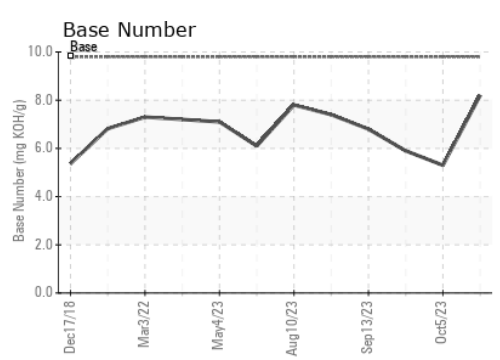
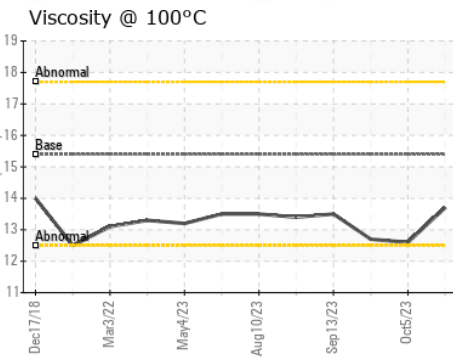
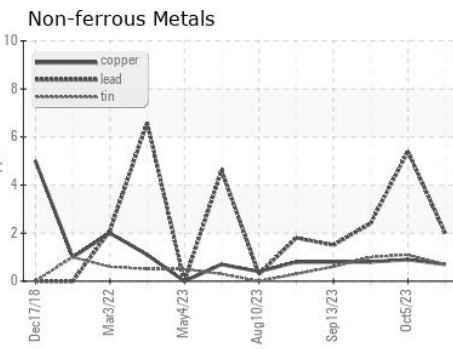
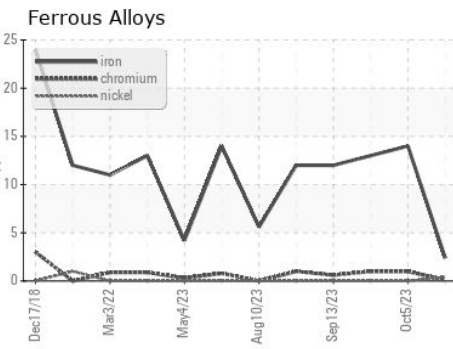
# OIL ANALYSIS REPORT



| 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> | 12.6     | 12.7 |

## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : GFL0088209 **Received** : 01 Nov 2023  
**Lab Number** : 05995269 **Diagnosed** : 02 Nov 2023  
**Unique Number** : 10723629 **Diagnostician** : Wes Davis  
**Test Package** : FLEET

**GFL Environmental - 820 - Joplin Hauling**  
 3700 West 7th Street  
 Joplin, MO  
 US 64801  
 Contact: James Jarrett  
 jjarrett@gflenv.com  
 T: (417)310-2802  
 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)