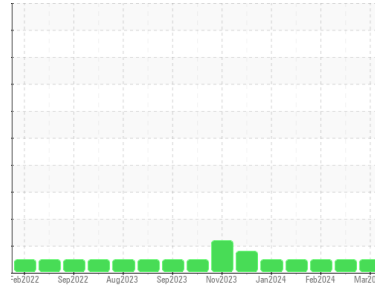




# OIL ANALYSIS REPORT

Sample Rating Trend



**NORMAL**



Machine Id  
**4620M**  
 Component  
**Diesel Engine**  
 Fluid  
**PETRO CANADA DURON SHP 15W40 (36 QTS)**

## 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>GFL0104289</b>  | GFL0110155  | GFL0110084  |
| Sample Date   | Client Info |             | <b>04 Mar 2024</b> | 13 Feb 2024 | 02 Feb 2024 |
| Machine Age   | hrs         | Client Info | <b>22509</b>       | 22366       | 22266       |
| Oil Age       | hrs         | Client Info | <b>600</b>         | 600         | 600         |
| 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 | >3.0       | <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 >90  | <b>6</b>     | 9        | 8        |
| Chromium | ppm    | ASTM D5185m >20  | <b>0</b>     | <1       | <1       |
| Nickel   | ppm    | ASTM D5185m >2   | <b>0</b>     | 0        | 0        |
| Titanium | ppm    | ASTM D5185m >2   | <b>0</b>     | <1       | 0        |
| Silver   | ppm    | ASTM D5185m >2   | <b>0</b>     | 0        | 0        |
| Aluminum | ppm    | ASTM D5185m >20  | <b>&lt;1</b> | 2        | 2        |
| Lead     | ppm    | ASTM D5185m >40  | <b>0</b>     | 0        | 0        |
| Copper   | ppm    | ASTM D5185m >330 | <b>0</b>     | <1       | 0        |
| Tin      | ppm    | ASTM D5185m >15  | <b>&lt;1</b> | <1       | 0        |
| Vanadium | ppm    | ASTM D5185m      | <b>0</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>&lt;1</b> | <1       | 2        |
| Barium     | ppm    | ASTM D5185m 0    | <b>0</b>     | 0        | 5        |
| Molybdenum | ppm    | ASTM D5185m 60   | <b>58</b>    | 52       | 55       |
| Manganese  | ppm    | ASTM D5185m 0    | <b>0</b>     | 0        | 0        |
| Magnesium  | ppm    | ASTM D5185m 1010 | <b>1012</b>  | 884      | 890      |
| Calcium    | ppm    | ASTM D5185m 1070 | <b>1091</b>  | 925      | 946      |
| Phosphorus | ppm    | ASTM D5185m 1150 | <b>1087</b>  | 967      | 898      |
| Zinc       | ppm    | ASTM D5185m 1270 | <b>1280</b>  | 1174     | 1155     |
| Sulfur     | ppm    | ASTM D5185m 2060 | <b>3274</b>  | 2903     | 2937     |

## CONTAMINANTS

|           | method | limit/base      | current  | history1 | history2 |
|-----------|--------|-----------------|----------|----------|----------|
| Silicon   | ppm    | ASTM D5185m >25 | <b>4</b> | 5        | 5        |
| Sodium    | ppm    | ASTM D5185m     | <b>3</b> | 3        | 0        |
| Potassium | ppm    | ASTM D5185m >20 | <b>0</b> | 1        | 2        |

## INFRA-RED

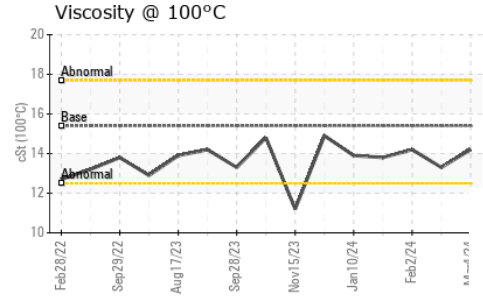
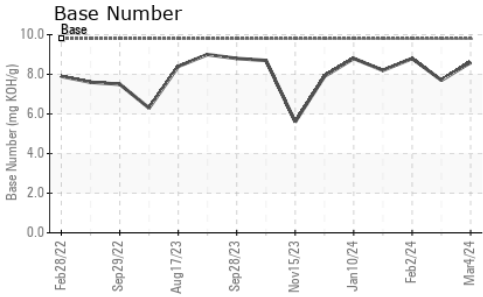
|           | method   | limit/base      | current     | history1 | history2 |
|-----------|----------|-----------------|-------------|----------|----------|
| Soot %    | %        | *ASTM D7844 >6  | <b>0.3</b>  | 0.5      | 0        |
| Nitration | Abs/cm   | *ASTM D7624 >20 | <b>6.7</b>  | 8.8      | 4.5      |
| Sulfation | Abs/.1mm | *ASTM D7415 >30 | <b>18.5</b> | 19.4     | 17.8     |

## FLUID DEGRADATION

|                  | method   | limit/base      | current     | history1 | history2 |
|------------------|----------|-----------------|-------------|----------|----------|
| Oxidation        | Abs/.1mm | *ASTM D7414 >25 | <b>14.5</b> | 16.2     | 13.1     |
| Base Number (BN) | mg KOH/g | ASTM D2896 9.8  | <b>8.6</b>  | 7.7      | 8.8      |



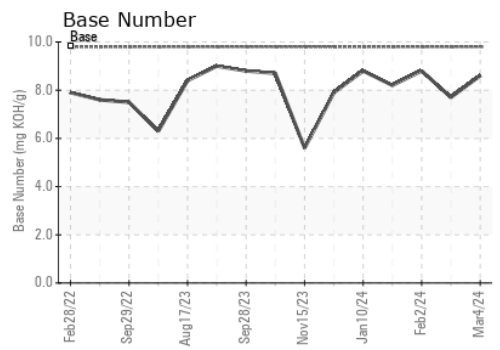
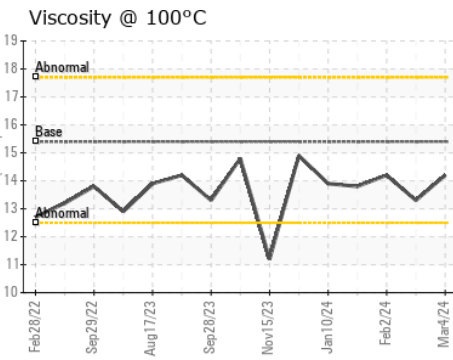
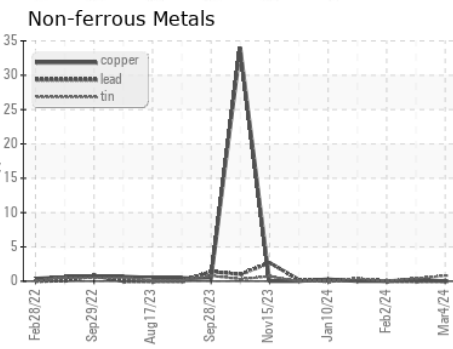
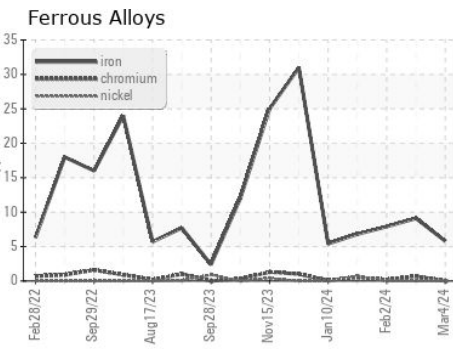
# OIL ANALYSIS REPORT



| 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>14.2</b> | 13.3     | 14.2 |

## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : GFL0104289 **Received** : 06 Mar 2024  
**Lab Number** : **06109835** **Tested** : 07 Mar 2024  
**Unique Number** : 10913332 **Diagnosed** : 07 Mar 2024 - Wes Davis  
**Test Package** : FLEET

**GFL Environmental - 410 - Michigan West**  
 39000 Van Born Rd  
 Wayne, MI  
 US 48184  
 Contact: Belal Dgheish  
 bdgheish@gflenv.com  
 T: (734)714-2340  
 F:

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)