



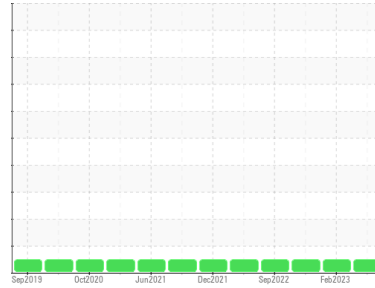
# OIL ANALYSIS REPORT

Sample Rating Trend

**NORMAL**



Machine Id  
**401185**  
 Component  
**Diesel Engine**  
 Fluid  
**PETRO CANADA DURON SHP 15W40 (--- GAL)**



## DIAGNOSIS

### Recommendation

Confirm the source of the lubricant being utilized for top-up/fill. 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

Additive levels indicate the addition of a different brand, or type of oil. The condition of the oil is acceptable for the time in service.

## SAMPLE INFORMATION

|               | method      | limit/base  | current            | history1    | history2    |
|---------------|-------------|-------------|--------------------|-------------|-------------|
| Sample Number | Client Info |             | <b>GFL0094464</b>  | GFL0063915  | GFL0063950  |
| Sample Date   | Client Info |             | <b>05 Oct 2023</b> | 09 Feb 2023 | 07 Nov 2022 |
| Machine Age   | hrs         | Client Info | <b>14082</b>       | 14082       | 14082       |
| Oil Age       | hrs         | Client Info | <b>14082</b>       | 14082       | 14082       |
| Oil Changed   |             | Client Info | <b>N/A</b>         | Changed     | 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     |
| Glycol | WC Method |            | <b>NEG</b>     | NEG      | NEG      |

## WEAR METALS

|           | method | limit/base    | current | history1     | history2 |    |
|-----------|--------|---------------|---------|--------------|----------|----|
| Iron      | ppm    | ASTM D5185(m) | >120    | <b>7</b>     | 11       | 6  |
| Chromium  | ppm    | ASTM D5185(m) | >20     | <b>0</b>     | <1       | 0  |
| Nickel    | ppm    | ASTM D5185(m) | >5      | <b>1</b>     | 1        | <1 |
| Titanium  | ppm    | ASTM D5185(m) | >2      | <b>0</b>     | <1       | <1 |
| Silver    | ppm    | ASTM D5185(m) | >2      | <b>&lt;1</b> | 0        | 0  |
| Aluminum  | ppm    | ASTM D5185(m) | >20     | <b>3</b>     | 2        | 1  |
| Lead      | ppm    | ASTM D5185(m) | >40     | <b>&lt;1</b> | <1       | <1 |
| Copper    | ppm    | ASTM D5185(m) | >330    | <b>2</b>     | 2        | 2  |
| Tin       | ppm    | ASTM D5185(m) | >15     | <b>0</b>     | <1       | 0  |
| Antimony  | ppm    | ASTM D5185(m) |         | <b>0</b>     | <1       | 0  |
| Vanadium  | ppm    | ASTM D5185(m) |         | <b>0</b>     | 0        | 0  |
| Beryllium | ppm    | ASTM D5185(m) |         | <b>0</b>     | 0        | 0  |
| Cadmium   | ppm    | ASTM D5185(m) |         | <b>0</b>     | 0        | 0  |

## ADDITIVES

|            | method | limit/base    | current | history1     | history2 |      |
|------------|--------|---------------|---------|--------------|----------|------|
| Boron      | ppm    | ASTM D5185(m) | 0       | <b>23</b>    | 3        | 3    |
| Barium     | ppm    | ASTM D5185(m) | 0       | <b>&lt;1</b> | 0        | 0    |
| Molybdenum | ppm    | ASTM D5185(m) | 60      | <b>81</b>    | 59       | 58   |
| Manganese  | ppm    | ASTM D5185(m) | 0       | <b>0</b>     | <1       | <1   |
| Magnesium  | ppm    | ASTM D5185(m) | 1010    | <b>151</b>   | 937      | 920  |
| Calcium    | ppm    | ASTM D5185(m) | 1070    | <b>1995</b>  | 1111     | 1060 |
| Phosphorus | ppm    | ASTM D5185(m) | 1150    | <b>986</b>   | 1080     | 1057 |
| Zinc       | ppm    | ASTM D5185(m) | 1270    | <b>1110</b>  | 1170     | 1130 |
| Sulfur     | ppm    | ASTM D5185(m) | 2060    | <b>2957</b>  | 2652     | 2589 |
| Lithium    | ppm    | ASTM D5185(m) |         | <b>&lt;1</b> | <1       | <1   |

## CONTAMINANTS

|           | method | limit/base    | current | history1 | history2 |   |
|-----------|--------|---------------|---------|----------|----------|---|
| Silicon   | ppm    | ASTM D5185(m) | >25     | <b>3</b> | 5        | 3 |
| Sodium    | ppm    | ASTM D5185(m) |         | <b>4</b> | 3        | 2 |
| Potassium | ppm    | ASTM D5185(m) | >20     | <b>0</b> | 0        | 0 |

## INFRA-RED

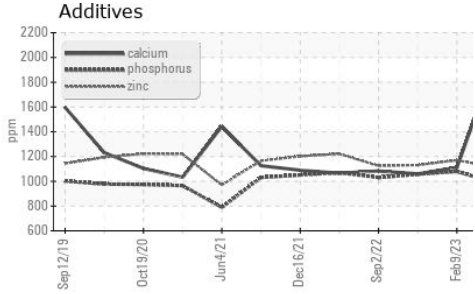
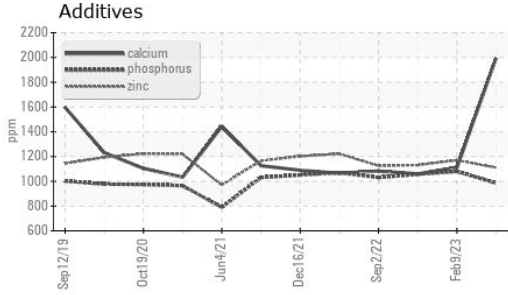
|           | method  | limit/base  | current | history1    | history2 |      |
|-----------|---------|-------------|---------|-------------|----------|------|
| Soot %    | %       | ASTM D7844* | >4      | <b>0.2</b>  | 0        | 0    |
| Nitration | Abs/cm  | ASTM D7624* | >20     | <b>9.8</b>  | 9.5      | 7.5  |
| Sulfation | Abs.1mm | ASTM D7415* | >30     | <b>20.1</b> | 20.0     | 19.1 |

## FLUID DEGRADATION

|           | method  | limit/base  | current | history1    | history2 |      |
|-----------|---------|-------------|---------|-------------|----------|------|
| Oxidation | Abs.1mm | ASTM D7414* | >25     | <b>15.3</b> | 16.3     | 15.1 |



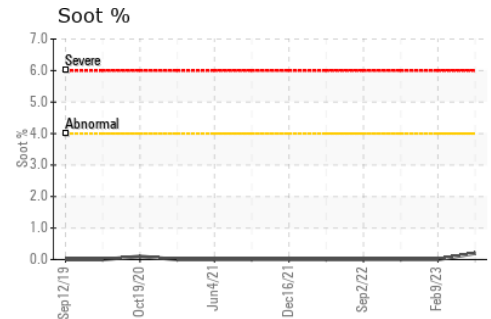
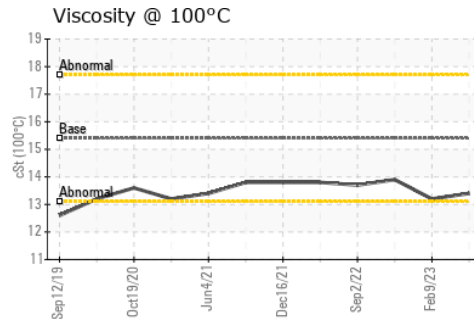
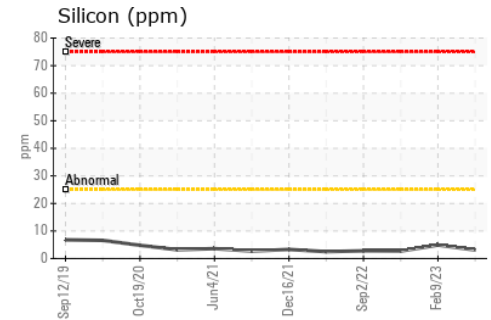
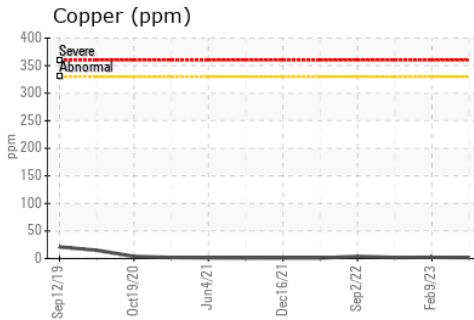
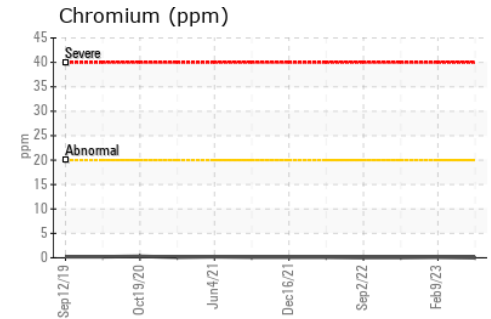
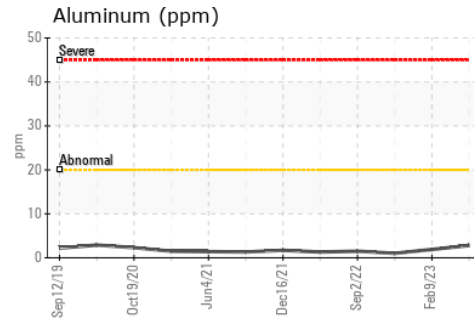
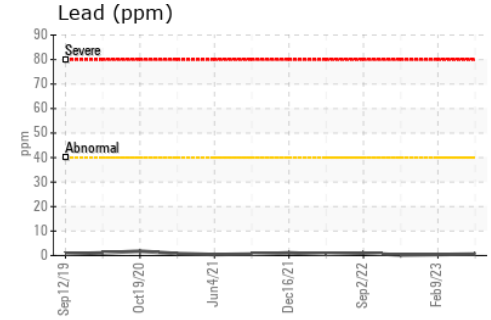
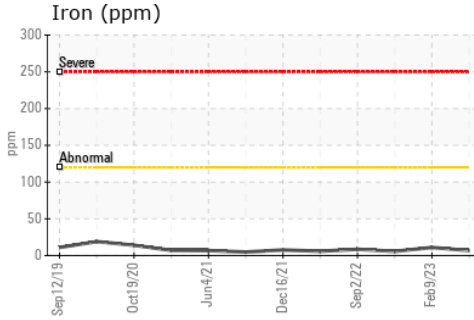
# OIL ANALYSIS REPORT



| VISUAL           | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|---------|----------|----------|
| 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 D7279(m) | 15.4    | 13.4     | 13.2     |

## GRAPHS



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : GFL0094464  
**Lab Number** : 02587473  
**Unique Number** : 5656539  
**Test Package** : MOB 1

**GFL Environmental - 222 - Sandhill**  
 SANDHILL DISPOSAL & RECYCLING DIVIS, 19 COMMERCE ROAD  
 ORANGEVILLE, ON  
 CA L9W 3X5  
 Contact: GLENN COOK  
 gcook@gflenv.com  
 T: (519)940-4167  
 F:

To discuss this sample report, contact Customer Service at 1-800-268-2131.  
 Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab.  
 Validity of results and interpretation are based on the sample and information as supplied.