



# OIL ANALYSIS REPORT

Sample Rating Trend

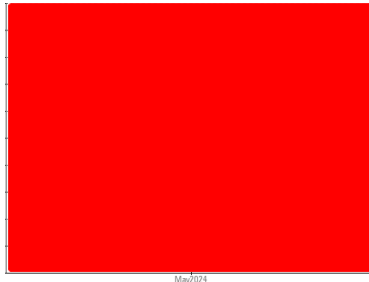
WEAR



Machine Id  
**STERLING 427154**

Component  
**Diesel Engine**

Fluid  
**PETRO CANADA DURON HP 15W40 (--- GAL)**



## DIAGNOSIS

### Recommendation

We advise that you check for the source of the coolant leak. We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. We recommend that you drain the oil from the component if this has not already been done. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

### Wear

Iron ppm levels are severe. PQ levels are abnormal. Cylinder, crank, or cam shaft wear is indicated. The high ferrous density (PQ) index indicates that abnormal wear is occurring.

### Contamination

Test for glycol is positive. There is a moderate amount of fuel present in the oil. There is a light concentration of glycol present in the oil. There is a moderate concentration of water present in the oil. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. Tests confirm the presence of fuel in the oil.

### Fluid Condition

Fuel is present in the oil and is lowering the viscosity. The white residue present in the sample is oil additive precipitate. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

## SAMPLE INFORMATION

|               | method      | limit/base  | current            | history1 | history2 |
|---------------|-------------|-------------|--------------------|----------|----------|
| Sample Number | Client Info |             | <b>GFL0122260</b>  | ---      | ---      |
| Sample Date   | Client Info |             | <b>29 May 2024</b> | ---      | ---      |
| Machine Age   | hrs         | Client Info | <b>27141</b>       | ---      | ---      |
| Oil Age       | hrs         | Client Info | <b>309</b>         | ---      | ---      |
| Oil Changed   | Client Info |             | <b>Changed</b>     | ---      | ---      |
| Sample Status |             |             | <b>SEVERE</b>      | ---      | ---      |

## WEAR METALS

|           | method      | limit/base         | current      | history1 | history2 |
|-----------|-------------|--------------------|--------------|----------|----------|
| PQ        | ASTM D8184* |                    | <b>▲ 133</b> | ---      | ---      |
| Iron      | ppm         | ASTM D5185(m) >100 | <b>▲ 295</b> | ---      | ---      |
| Chromium  | ppm         | ASTM D5185(m) >20  | <b>1</b>     | ---      | ---      |
| Nickel    | ppm         | ASTM D5185(m) >4   | <b>0</b>     | ---      | ---      |
| Titanium  | ppm         | ASTM D5185(m)      | <b>1</b>     | ---      | ---      |
| Silver    | ppm         | ASTM D5185(m) >3   | <b>0</b>     | ---      | ---      |
| Aluminum  | ppm         | ASTM D5185(m) >20  | <b>17</b>    | ---      | ---      |
| Lead      | ppm         | ASTM D5185(m) >40  | <b>0</b>     | ---      | ---      |
| Copper    | ppm         | ASTM D5185(m) >330 | <b>3</b>     | ---      | ---      |
| Tin       | ppm         | ASTM D5185(m) >15  | <b>0</b>     | ---      | ---      |
| Antimony  | ppm         | ASTM D5185(m)      | <b>0</b>     | ---      | ---      |
| Vanadium  | ppm         | ASTM D5185(m)      | <b>0</b>     | ---      | ---      |
| Beryllium | ppm         | ASTM D5185(m)      | <b>0</b>     | ---      | ---      |
| Cadmium   | ppm         | ASTM D5185(m)      | <b>0</b>     | ---      | ---      |

## ADDITIVES

|            | method | limit/base         | current      | history1 | history2 |
|------------|--------|--------------------|--------------|----------|----------|
| Boron      | ppm    | ASTM D5185(m) 0    | <b>10</b>    | ---      | ---      |
| Barium     | ppm    | ASTM D5185(m) 0    | <b>38</b>    | ---      | ---      |
| Molybdenum | ppm    | ASTM D5185(m) 60   | <b>50</b>    | ---      | ---      |
| Manganese  | ppm    | ASTM D5185(m) 0    | <b>3</b>     | ---      | ---      |
| Magnesium  | ppm    | ASTM D5185(m) 1010 | <b>809</b>   | ---      | ---      |
| Calcium    | ppm    | ASTM D5185(m) 1070 | <b>908</b>   | ---      | ---      |
| Phosphorus | ppm    | ASTM D5185(m) 1150 | <b>959</b>   | ---      | ---      |
| Zinc       | ppm    | ASTM D5185(m) 1270 | <b>996</b>   | ---      | ---      |
| Sulfur     | ppm    | ASTM D5185(m) 2060 | <b>3515</b>  | ---      | ---      |
| Lithium    | ppm    | ASTM D5185(m)      | <b>&lt;1</b> | ---      | ---      |

## CONTAMINANTS

|           | method | limit/base        | current        | history1 | history2 |
|-----------|--------|-------------------|----------------|----------|----------|
| Silicon   | ppm    | ASTM D5185(m) >25 | <b>▲ 54</b>    | ---      | ---      |
| Sodium    | ppm    | ASTM D5185(m)     | <b>● 66</b>    | ---      | ---      |
| Potassium | ppm    | ASTM D5185(m) >20 | <b>▲ 12</b>    | ---      | ---      |
| Fuel      | %      | ASTM D7593* >5    | <b>▲ 5.7</b>   | ---      | ---      |
| Water     | %      | ASTM D6304* >0.2  | <b>NEG</b>     | ---      | ---      |
| Glycol    | %      | ASTM D7922*       | <b>▲ 0.037</b> | ---      | ---      |

## INFRA-RED

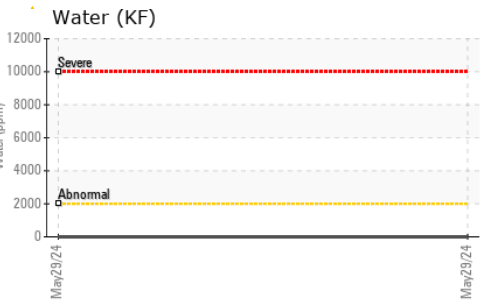
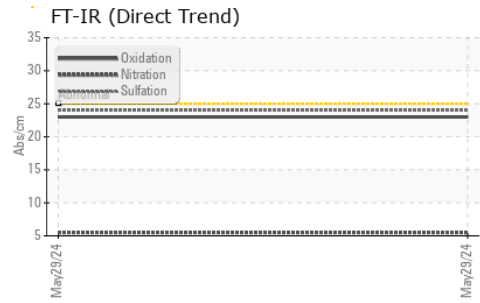
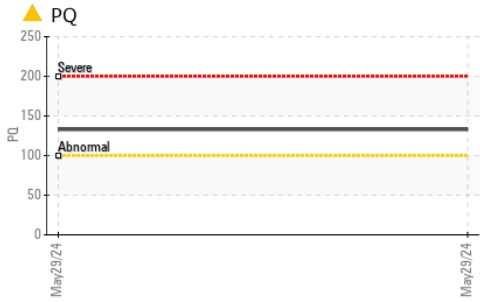
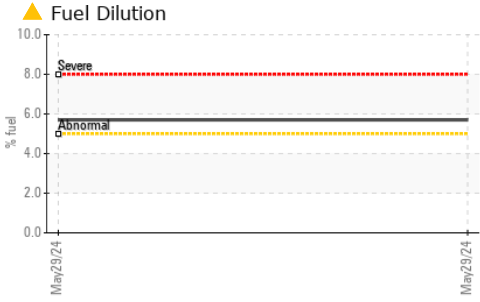
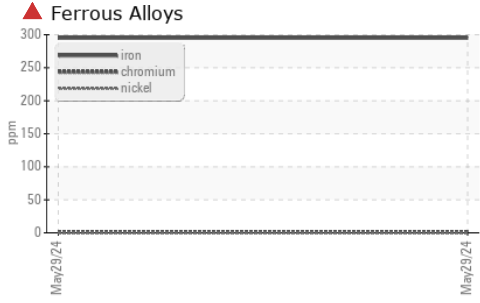
|           | method   | limit/base      | current     | history1 | history2 |
|-----------|----------|-----------------|-------------|----------|----------|
| Soot %    | %        | ASTM D7844* >3  | <b>0</b>    | ---      | ---      |
| Nitration | Abs/cm   | ASTM D7624* >20 | <b>5.5</b>  | ---      | ---      |
| Sulfation | Abs/.1mm | ASTM D7415* >30 | <b>24.0</b> | ---      | ---      |

## FLUID DEGRADATION

|           | method   | limit/base      | current     | history1 | history2 |
|-----------|----------|-----------------|-------------|----------|----------|
| Oxidation | Abs/.1mm | ASTM D7414* >25 | <b>23.0</b> | ---      | ---      |



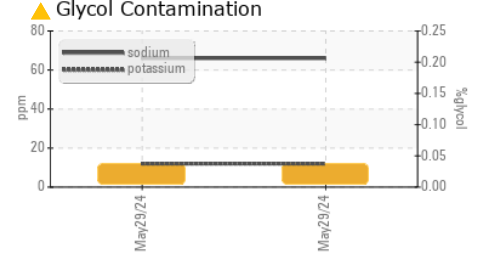
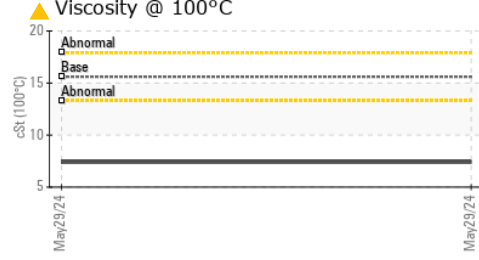
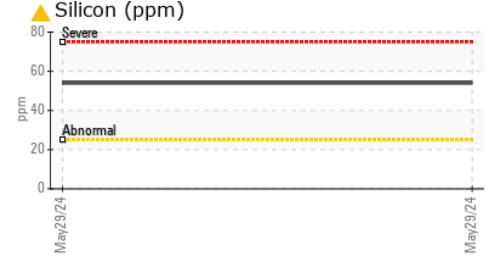
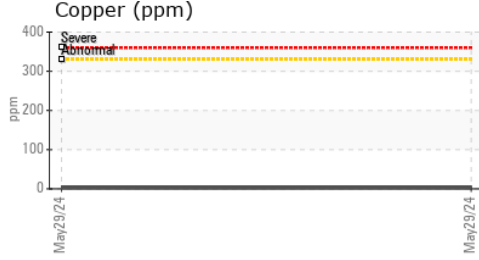
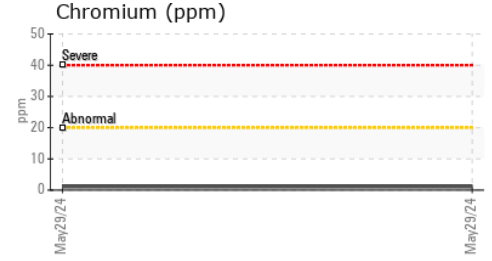
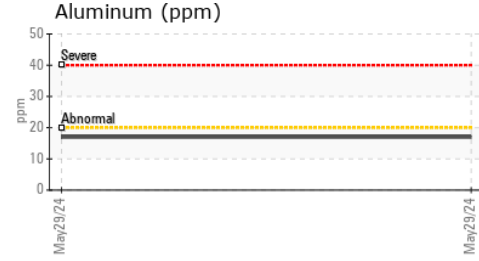
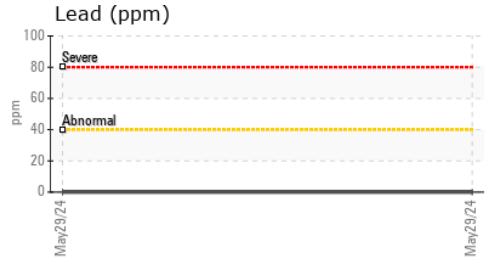
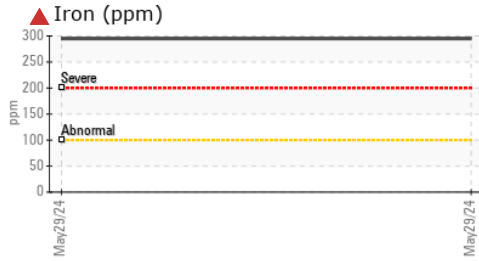
# OIL ANALYSIS REPORT



| VISUAL           | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|---------|----------|----------|
| White Metal      | scalar | Visual*    | NONE    | NONE     | ---      |
| Yellow Metal     | scalar | Visual*    | NONE    | NONE     | ---      |
| Precipitate      | scalar | Visual*    | NONE    | ▲ LIGHT  | ---      |
| Silt             | scalar | Visual*    | NONE    | NONE     | ---      |
| Debris           | scalar | Visual*    | NONE    | NONE     | ---      |
| Sand/Dirt        | scalar | Visual*    | NONE    | NONE     | ---      |
| Appearance       | scalar | Visual*    | NORML   | NORML    | ---      |
| Odor             | scalar | Visual*    | NORML   | NORML    | ---      |
| Emulsified Water | scalar | Visual*    | >0.2    | ▲ 1%     | ---      |
| Free Water       | scalar | Visual*    |         | NEG      | ---      |

| FLUID PROPERTIES | method | limit/base    | current | history1 | history2 |
|------------------|--------|---------------|---------|----------|----------|
| Visc @ 100°C     | cSt    | ASTM D7279(m) | 15.6    | ▲ 7.4    | ---      |

## GRAPHS



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9    **GFL Environmental - 987 - Charlottetown**  
**Sample No.** : GFL0122260    **Received** : 06 Jun 2024    7 Superior Crescent  
**Lab Number** : 02640170    **Tested** : 07 Jun 2024    Charlottetown, PE  
**Unique Number** : 5789332    **Diagnosed** : 07 Jun 2024 - Kevin Marson    CA C1A 7N5  
**Test Package** : MOB 1 ( Additional Tests: Bottom, FuelDilution, Glycol, KF, PercentFuel, PQ, Viscosity )    **Contact:** Vicki Metcalfe  
vmetcalfe@gflenv.com

To discuss this sample report, contact Customer Service at 1-800-268-2131.    **T:** (782)377-5918  
 Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab.    **F:** (506)453-9490  
 Validity of results and interpretation are based on the sample and information as supplied.