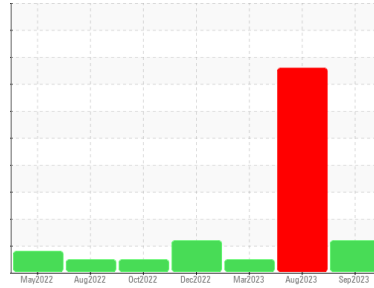




# OIL ANALYSIS REPORT

Sample Rating Trend



FUEL



Machine Id  
**811057**

Component  
**Diesel Engine**

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

## DIAGNOSIS

### Recommendation

The oil change at the time of sampling has been noted. Resample at the next service interval to monitor.

### Wear

Metal levels are typical for a new component breaking in.

### Contamination

Light fuel dilution occurring.

### Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The condition of the oil is suitable for further service.

## SAMPLE INFORMATION

| method        | limit/base      | current            | history1    | history2    |
|---------------|-----------------|--------------------|-------------|-------------|
| Sample Number | Client Info     | <b>GFL0084338</b>  | GFL0084359  | GFL0070726  |
| Sample Date   | Client Info     | <b>11 Sep 2023</b> | 21 Aug 2023 | 06 Mar 2023 |
| Machine Age   | kms Client Info | <b>56251</b>       | 0           | 2116        |
| Oil Age       | kms Client Info | <b>0</b>           | 53597       | 600         |
| Oil Changed   | Client Info     | <b>Changed</b>     | Changed     | Changed     |
| Sample Status |                 | <b>ABNORMAL</b>    | SEVERE      | NORMAL      |

## CONTAMINATION

| method | limit/base | current    | history1 | history2 |
|--------|------------|------------|----------|----------|
| Glycol | WC Method  | <b>NEG</b> | NEG      | NEG      |

## WEAR METALS

| method    | limit/base             | current      | history1 | history2 |
|-----------|------------------------|--------------|----------|----------|
| Iron      | ppm ASTM D5185(m) >100 | <b>22</b>    | 81       | 34       |
| Chromium  | ppm ASTM D5185(m) >20  | <b>1</b>     | 4        | 2        |
| Nickel    | ppm ASTM D5185(m) >2   | <b>&lt;1</b> | <1       | <1       |
| Titanium  | ppm ASTM D5185(m) >2   | <b>0</b>     | <1       | <1       |
| Silver    | ppm ASTM D5185(m) >2   | <b>2</b>     | 9        | 0        |
| Aluminum  | ppm ASTM D5185(m) >25  | <b>2</b>     | 2        | 2        |
| Lead      | ppm ASTM D5185(m) >40  | <b>&lt;1</b> | 2        | 0        |
| Copper    | ppm ASTM D5185(m) >330 | <b>7</b>     | 35       | 1        |
| Tin       | ppm ASTM D5185(m) >15  | <b>0</b>     | <1       | <1       |
| Antimony  | ppm ASTM D5185(m)      | <b>0</b>     | 0        | <1       |
| 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>2</b>     | 4        | 2        |
| Barium     | ppm ASTM D5185(m) 0    | <b>&lt;1</b> | 4        | 0        |
| Molybdenum | ppm ASTM D5185(m) 60   | <b>56</b>    | 57       | 56       |
| Manganese  | ppm ASTM D5185(m) 0    | <b>1</b>     | 6        | <1       |
| Magnesium  | ppm ASTM D5185(m) 1010 | <b>914</b>   | 904      | 896      |
| Calcium    | ppm ASTM D5185(m) 1070 | <b>959</b>   | 995      | 1109     |
| Phosphorus | ppm ASTM D5185(m) 1150 | <b>1003</b>  | 960      | 1039     |
| Zinc       | ppm ASTM D5185(m) 1270 | <b>1115</b>  | 1117     | 1148     |
| Sulfur     | ppm ASTM D5185(m) 2060 | <b>2396</b>  | 2188     | 2428     |
| Lithium    | ppm ASTM D5185(m)      | <b>&lt;1</b> | <1       | <1       |

## CONTAMINANTS

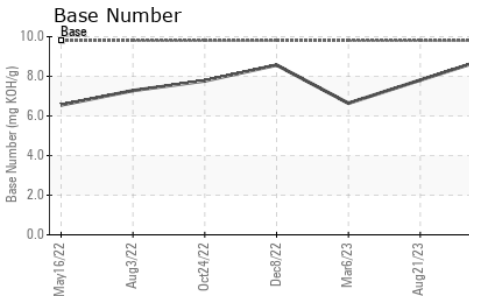
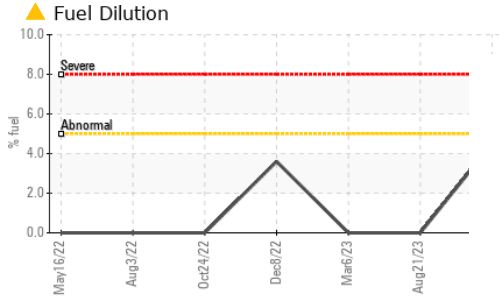
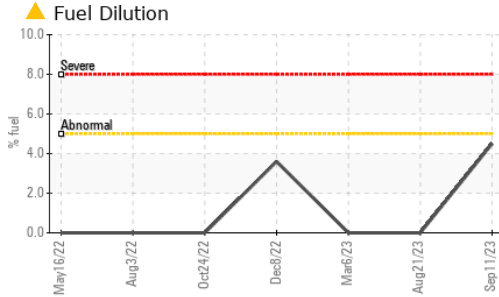
| method    | limit/base            | current      | history1 | history2 |
|-----------|-----------------------|--------------|----------|----------|
| Silicon   | ppm ASTM D5185(m) >25 | <b>8</b>     | 30       | 4        |
| Sodium    | ppm ASTM D5185(m)     | <b>3</b>     | 11       | 2        |
| Potassium | ppm ASTM D5185(m) >20 | <b>&lt;1</b> | 4        | <1       |
| Fuel      | % ASTM D7593* >5      | <b>4.5</b>   | <1.0     | <1.0     |

## INFRA-RED

| method    | limit/base               | current     | history1 | history2 |
|-----------|--------------------------|-------------|----------|----------|
| Soot %    | % ASTM D7844* >3         | <b>0.1</b>  | 0.5      | 0.4      |
| Nitration | Abs/cm ASTM D7624* >20   | <b>6.8</b>  | 10.2     | 10.4     |
| Sulfation | Abs/.1mm ASTM D7415* >30 | <b>20.2</b> | 24.2     | 24.0     |



# OIL ANALYSIS REPORT

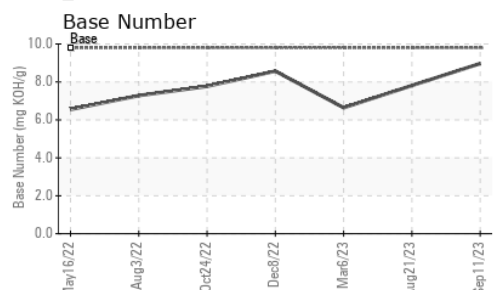
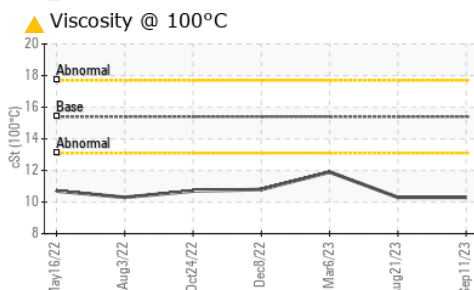
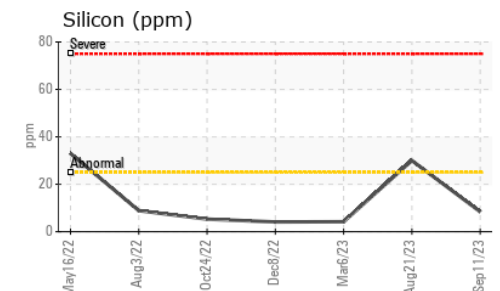
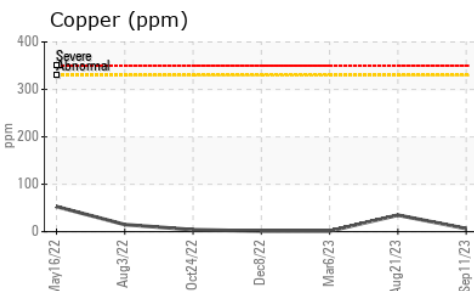
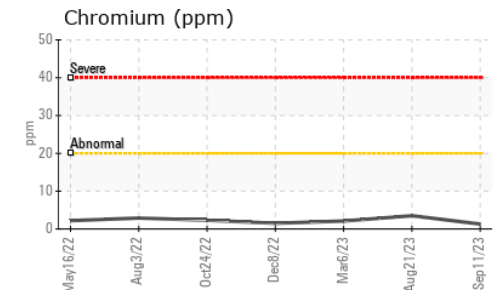
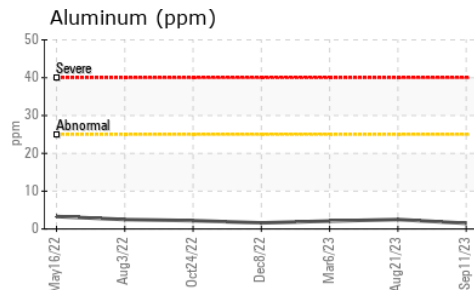
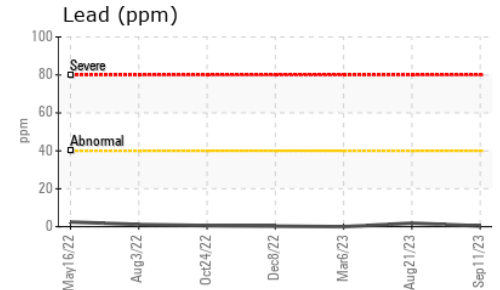
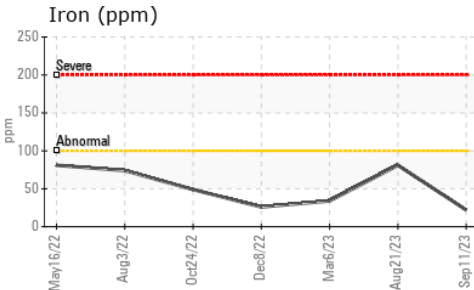


| FLUID DEGRADATION |          | method      | limit/base | current     | history1 | history2 |
|-------------------|----------|-------------|------------|-------------|----------|----------|
| Oxidation         | Abs./1mm | ASTM D7414* | >25        | <b>17.3</b> | 21.8     | 19.2     |
| Base Number (BN)  | mg KOH/g | ASTM D2896* | 9.8        | <b>8.97</b> | 7.81     | 6.64     |

| VISUAL           |        | method  | limit/base | current    | history1 | history2 |
|------------------|--------|---------|------------|------------|----------|----------|
| Emulsified Water | scalar | Visual* | >0.2       | <b>NEG</b> | NEG      | NEG      |
| Free Water       | scalar | Visual* |            | <b>NEG</b> | NEG      | NEG      |

| FLUID PROPERTIES |     | method        | limit/base | current       | history1 | history2 |
|------------------|-----|---------------|------------|---------------|----------|----------|
| Visc @ 100°C     | cSt | ASTM D7279(m) | 15.4       | <b>▲ 10.3</b> | 10.3     | 11.9     |

## GRAPHS



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 GFL Environmental - 550 - Rocky View County  
**Sample No.** : GFL0084338 **Received** : 19 Sep 2023 220 Carmek Blvd  
**Lab Number** : **02583460** **Diagnosed** : 20 Sep 2023 Rocky View County, AB  
**Unique Number** : 5644525 **Diagnostician** : Wes Davis CA T1X 1X1  
**Test Package** : MOB 2 ( Additional Tests: FuelDilution, PercentFuel ) Contact: GFL Calgary  
 To discuss this sample report, contact Customer Service at 1-800-268-2131. calgarymaintenance@gflenv.com  
 Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab. T:  
 Validity of results and interpretation are based on the sample and information as supplied. F: (403)369-6163