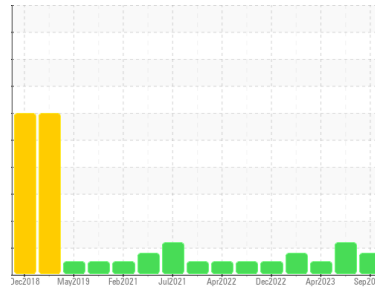




# OIL ANALYSIS REPORT

Sample Rating Trend



FUEL



Machine Id  
**801115**

Component  
**Diesel Engine**

Fluid  
**PETRO CANADA DURON XL SYN BLEND 15W40 (--- GAL)**

## DIAGNOSIS

### Recommendation

The oil change at the time of sampling has been noted. Resample at the next service interval to monitor. No other corrective action is recommended at this time.

### Wear

All component wear rates are normal.

### Contamination

Light fuel dilution occurring. No other contaminants were detected 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>GFL0091637</b>  | GFL0077585  | GFL0077562  |
| Sample Date   | Client Info |             | <b>27 Sep 2023</b> | 28 Jun 2023 | 09 Apr 2023 |
| Machine Age   | hrs         | Client Info | <b>13129</b>       | 168420      | 12015       |
| Oil Age       | hrs         | Client Info | <b>0</b>           | 0           | 1164        |
| Oil Changed   | Client Info |             | <b>Changed</b>     | N/A         | Changed     |
| Sample Status |             |             | <b>MARGINAL</b>    | ABNORMAL    | 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>34</b>    | 34       | 21       |
| Chromium  | ppm    | ASTM D5185(m) >20  | <b>1</b>     | 3        | <1       |
| Nickel    | ppm    | ASTM D5185(m) >4   | <b>&lt;1</b> | <1       | <1       |
| Titanium  | ppm    | ASTM D5185(m)      | <b>0</b>     | 0        | <1       |
| Silver    | ppm    | ASTM D5185(m) >3   | <b>&lt;1</b> | 0        | 0        |
| Aluminum  | ppm    | ASTM D5185(m) >20  | <b>3</b>     | 5        | 3        |
| Lead      | ppm    | ASTM D5185(m) >40  | <b>0</b>     | 0        | <1       |
| Copper    | ppm    | ASTM D5185(m) >330 | <b>2</b>     | 1        | 1        |
| Tin       | ppm    | ASTM D5185(m) >15  | <b>0</b>     | 0        | 0        |
| 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) 1    | <b>2</b>     | 2        | 2        |
| Barium     | ppm    | ASTM D5185(m) 1    | <b>&lt;1</b> | 0        | 0        |
| Molybdenum | ppm    | ASTM D5185(m) 60   | <b>57</b>    | 53       | 55       |
| Manganese  | ppm    | ASTM D5185(m) 1    | <b>0</b>     | <1       | <1       |
| Magnesium  | ppm    | ASTM D5185(m) 1010 | <b>889</b>   | 850      | 892      |
| Calcium    | ppm    | ASTM D5185(m) 1070 | <b>996</b>   | 935      | 1062     |
| Phosphorus | ppm    | ASTM D5185(m) 1150 | <b>905</b>   | 921      | 994      |
| Zinc       | ppm    | ASTM D5185(m) 1270 | <b>1126</b>  | 1049     | 1120     |
| Sulfur     | ppm    | ASTM D5185(m) 2060 | <b>2272</b>  | 2143     | 2320     |
| Lithium    | ppm    | ASTM D5185(m)      | <b>&lt;1</b> | <1       | <1       |

## CONTAMINANTS

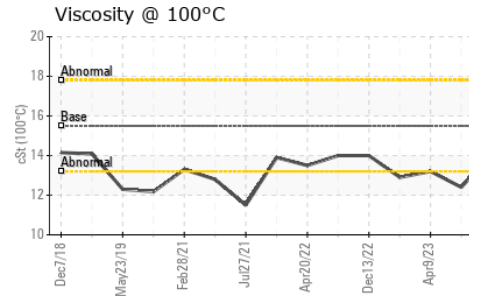
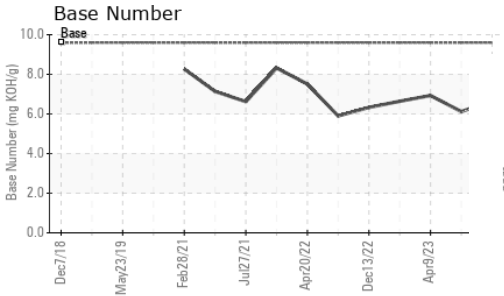
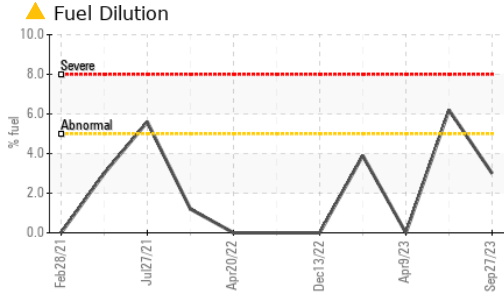
|           | method | limit/base        | current      | history1 | history2 |
|-----------|--------|-------------------|--------------|----------|----------|
| Silicon   | ppm    | ASTM D5185(m) >25 | <b>7</b>     | 10       | 9        |
| Sodium    | ppm    | ASTM D5185(m)     | <b>8</b>     | 7        | 11       |
| Potassium | ppm    | ASTM D5185(m) >20 | <b>&lt;1</b> | 2        | 1        |
| Fuel      | %      | ASTM D7593* >5    | <b>▲ 3</b>   | ▲ 6.2    | <1.0     |

## INFRA-RED

|           | method   | limit/base      | current     | history1 | history2 |
|-----------|----------|-----------------|-------------|----------|----------|
| Soot %    | %        | ASTM D7844* >3  | <b>1.4</b>  | 1.1      | 1        |
| Nitration | Abs/cm   | ASTM D7624* >20 | <b>11.6</b> | 11.3     | 10.0     |
| Sulfation | Abs/.1mm | ASTM D7415* >30 | <b>25.9</b> | 25.0     | 22.2     |



# OIL ANALYSIS REPORT

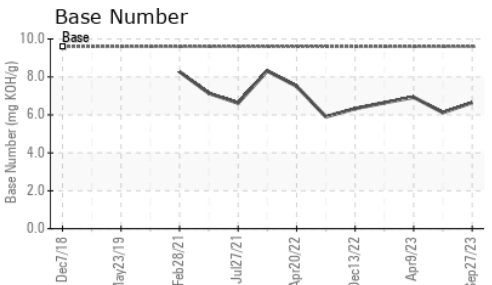
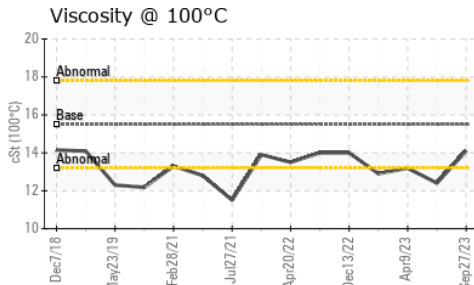
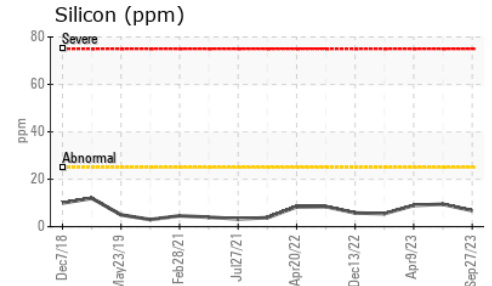
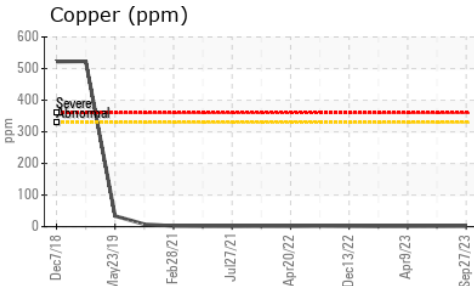
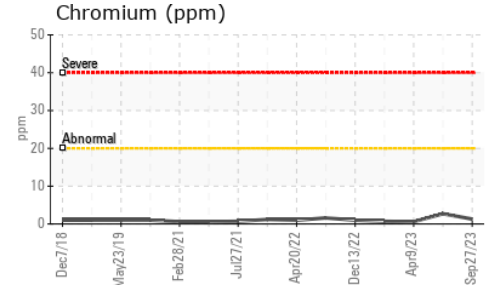
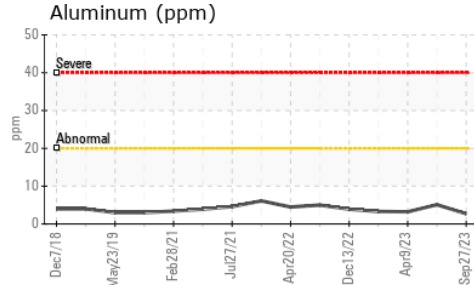
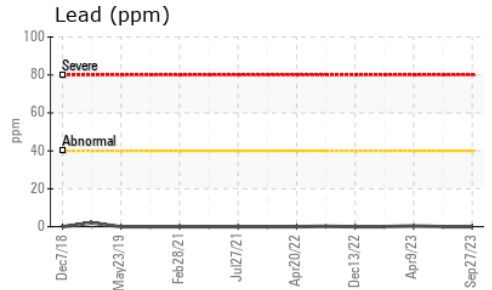
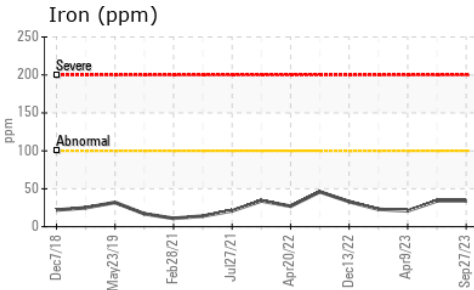


| FLUID DEGRADATION |          | method      | limit/base | current     | history1 | history2 |
|-------------------|----------|-------------|------------|-------------|----------|----------|
| Oxidation         | Abs/.1mm | ASTM D7414* | >25        | <b>23.9</b> | 24.3     | 18.7     |
| Base Number (BN)  | mg KOH/g | ASTM D2896* | 9.6        | <b>6.65</b> | 6.12     | 6.93     |

| 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) | 15.5       | <b>14.1</b> | ▲ 12.4   | 13.2     |

## GRAPHS



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 GFL Environmental - 550 - Rocky View County  
**Sample No.** : GFL0091637 **Received** : 05 Oct 2023  
**Lab Number** : **02587009** **Diagnosed** : 06 Oct 2023  
**Unique Number** : 5656075 **Diagnostician** : Wes Davis  
**Test Package** : MOB 2 ( Additional Tests: PercentFuel )

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.

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