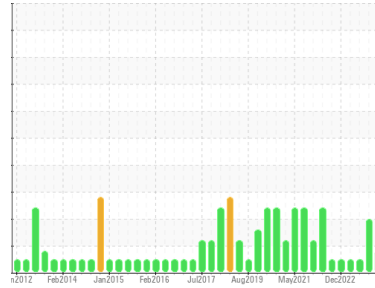




# OIL ANALYSIS REPORT

Sample Rating Trend



FUEL



Machine Id  
**4416**

Component  
**Diesel Engine**

Fluid  
**CASTROL TECTION EXTRA SAE 15W-40 (40 LTR)**

## DIAGNOSIS

### Recommendation

We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.

### Wear

All component wear rates are normal.

### Contamination

There is a moderate amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

### Fluid Condition

The oil is no longer serviceable due to the presence of contaminants.

## SAMPLE INFORMATION

| method        | limit/base  | current            | history1    | history2    |
|---------------|-------------|--------------------|-------------|-------------|
| Sample Number | Client Info | <b>GFL0111994</b>  | GFL0090399  | GFL0090412  |
| Sample Date   | Client Info | <b>20 Mar 2024</b> | 27 Feb 2024 | 16 Nov 2023 |
| Machine Age   | hrs         | <b>46937</b>       | 1086423     | 79795       |
| Oil Age       | hrs         | <b>0</b>           | 0           | 0           |
| Oil Changed   | Client Info | <b>N/A</b>         | N/A         | Changed     |
| Sample Status |             | <b>ABNORMAL</b>    | SEVERE      | NORMAL      |

## CONTAMINATION

| method | limit/base | current | history1   | history2 |     |
|--------|------------|---------|------------|----------|-----|
| 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 D5185(m) | >120     | <b>5</b>  | 16 | 11 |
| Chromium  | ppm        | ASTM D5185(m) | >20      | <b>0</b>  | <1 | <1 |
| Nickel    | ppm        | ASTM D5185(m) | >5       | <b>0</b>  | <1 | <1 |
| Titanium  | ppm        | ASTM D5185(m) | >2       | <b>0</b>  | 0  | 0  |
| Silver    | ppm        | ASTM D5185(m) | >2       | <b>0</b>  | 0  | <1 |
| Aluminum  | ppm        | ASTM D5185(m) | >20      | <b>0</b>  | 2  | 3  |
| Lead      | ppm        | ASTM D5185(m) | >40      | <b>4</b>  | 5  | <1 |
| Copper    | ppm        | ASTM D5185(m) | >330     | <b>20</b> | 12 | <1 |
| Tin       | ppm        | ASTM D5185(m) | >15      | <b>0</b>  | 0  | 0  |
| Antimony  | ppm        | ASTM D5185(m) |          | <b>0</b>  | 0  | 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) | 30       | <b>8</b>     | 5    | 41   |
| Barium     | ppm        | ASTM D5185(m) |          | <b>0</b>     | 0    | <1   |
| Molybdenum | ppm        | ASTM D5185(m) |          | <b>55</b>    | 50   | 9    |
| Manganese  | ppm        | ASTM D5185(m) |          | <b>0</b>     | 0    | 0    |
| Magnesium  | ppm        | ASTM D5185(m) | 110      | <b>911</b>   | 809  | 113  |
| Calcium    | ppm        | ASTM D5185(m) | 2740     | <b>1019</b>  | 1065 | 1936 |
| Phosphorus | ppm        | ASTM D5185(m) | 1240     | <b>968</b>   | 932  | 956  |
| Zinc       | ppm        | ASTM D5185(m) | 1350     | <b>1131</b>  | 1080 | 1085 |
| Sulfur     | ppm        | ASTM D5185(m) | 3520     | <b>2513</b>  | 2532 | 2958 |
| Lithium    | ppm        | ASTM D5185(m) |          | <b>&lt;1</b> | <1   | <1   |

## CONTAMINANTS

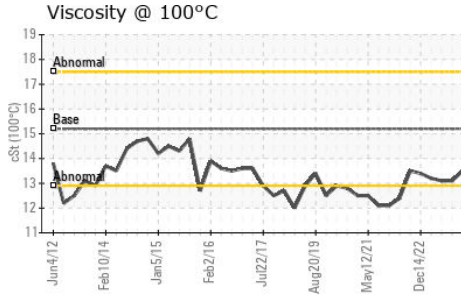
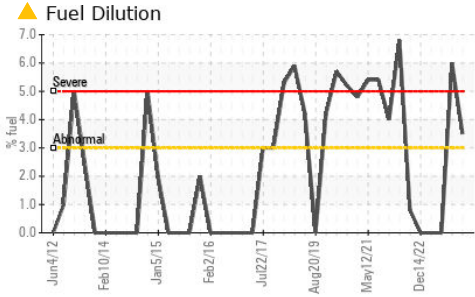
| method    | limit/base | current       | history1 | history2     |     |      |
|-----------|------------|---------------|----------|--------------|-----|------|
| Silicon   | ppm        | ASTM D5185(m) | >25      | <b>&lt;1</b> | 3   | 6    |
| Sodium    | ppm        | ASTM D5185(m) |          | <b>&lt;1</b> | 4   | 6    |
| Potassium | ppm        | ASTM D5185(m) | >20      | <b>0</b>     | 1   | 0    |
| Fuel      | %          | ASTM D7593*   | >3.0     | <b>▲ 3.5</b> | ▲ 6 | <1.0 |

## INFRA-RED

| method    | limit/base | current     | history1 | history2    |      |      |
|-----------|------------|-------------|----------|-------------|------|------|
| Soot %    | %          | ASTM D7844* | >4       | <b>0.5</b>  | 2.1  | 1.4  |
| Nitration | Abs/cm     | ASTM D7624* | >20      | <b>5.4</b>  | 8.4  | 8.9  |
| Sulfation | Abs./1mm   | ASTM D7415* | >30      | <b>18.3</b> | 21.4 | 19.8 |



# OIL ANALYSIS REPORT

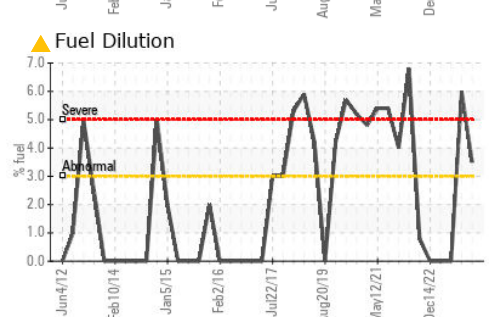
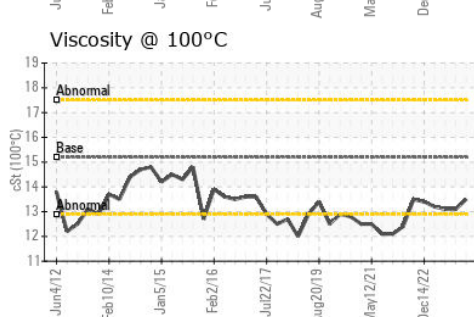
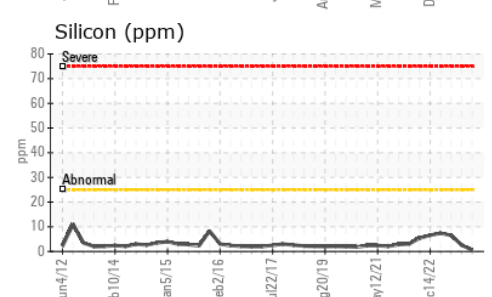
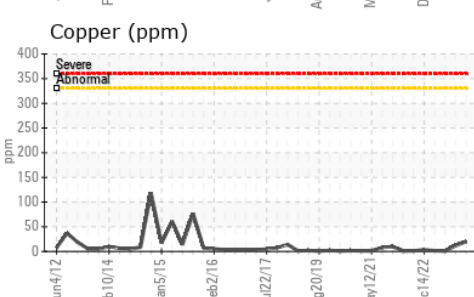
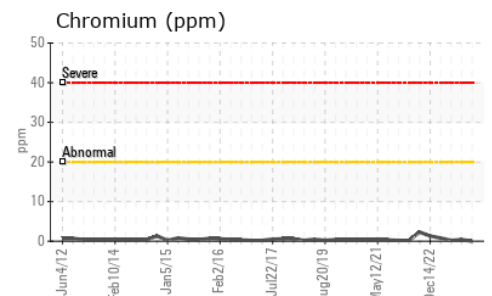
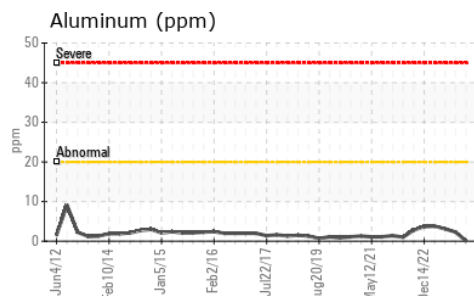
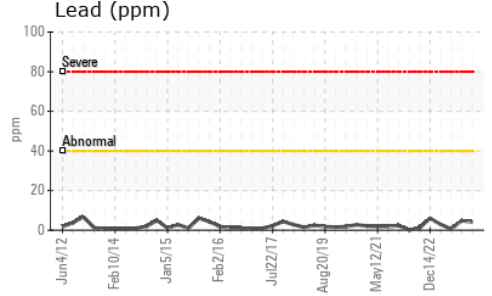
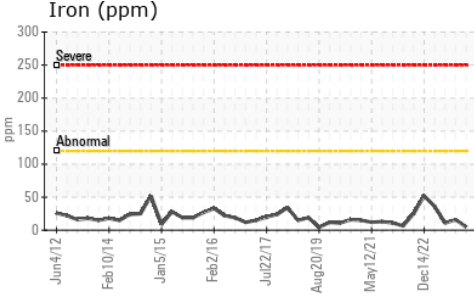


| FLUID DEGRADATION |          | method      | limit/base | current     | history1 | history2 |
|-------------------|----------|-------------|------------|-------------|----------|----------|
| Oxidation         | Abs./1mm | ASTM D7414* | >25        | <b>12.3</b> | 13.8     | 12.3     |

| 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) | 15.2       | <b>13.5</b> | 13.1     | 13.1     |

## GRAPHS



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : GFL0111994 **Received** : 21 Mar 2024  
**Lab Number** : **02623621** **Tested** : 22 Mar 2024  
**Unique Number** : 5748740 **Diagnosed** : 22 Mar 2024 - Wes Davis  
**Test Package** : MOB 1 ( Additional Tests: PercentFuel )

**GFL Environmental - 216M**  
 2475 Beryl Drive  
 Oakville, ON  
 CA L6J 7X4  
 Contact: Matthew Gunness  
 mgunness@gflenv.com

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.