

# **OIL ANALYSIS REPORT**

#### Sample Rating Trend



## Machine Id 341313

Component Diesel Engine

PETRO CANADA DURON SHP 10W30 (--- QTS)

### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

#### Wear

Elui

Metal levels are typical for a new component breaking in.

#### Contamination

There is no indication of any contamination 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.

| RTS)  |  |   | Sep2023   | Jan2024  |  |  |
|---|--|---|---|--|--|--|
| SAMPLE INFOR  | MATION   | method  | limit/base  | current  | history1   | history2   |
| Sample Number   |  | Client Info   |   | PCA0115217   | PCA0104265   |  |
| Sample Date   |  | Client Info   |   | 13 Jan 2024  | 11 Sep 2023  |  |
| Machine Age   | mls  | Client Info   |   | 27069  | 14145  |  |
| Oil Age   | mls  | Client Info   |   | 0  | 0  |  |
| Oil Changed   |  | Client Info   |   | N/A  | Changed  |  |
| Sample Status   |  |   |   | NORMAL   | NORMAL   |  |
| CONTAMINAT  | ION  | method  | limit/base  | current  | history1   | history2   |
| Fuel  |  | WC Method   | >5  | <1.0   | <1.0   |  |
| Water   |  | WC Method   | >0.2  | NEG  | NEG  |  |
| Glycol  |  | WC Method   |   | NEG  | NEG  |  |
| WEAR METAL  | S  | method  | limit/base  | current  | history1   | history2   |
| Iron  | ppm  | ASTM D5185m   | >100  | 46   | 68   |  |
| Chromium  | ppm  | ASTM D5185m   | >20   | 3  | 2  |  |
| Nickel  | ppm  | ASTM D5185m   | >4  | 0  | 1  |  |
| Titanium  | ppm  | ASTM D5185m   |   | 0  | 0  |  |
| Silver  | ppm  | ASTM D5185m   | >3  | 0  | 0  |  |
| Aluminum  | ppm  | ASTM D5185m   | >20   | 13   | 11   |  |
| Lead  | ppm  | ASTM D5185m   | >40   | 0  | <1   |  |
| Copper  | ppm  | ASTM D5185m   | >330  | 6  | 43   |  |
| Tin   | ppm  | ASTM D5185m   | >15   | <1   | <1   |  |
| Vanadium  | ppm  | ASTM D5185m   |   | <1   | 0  |  |
| Cadmium   | ppm  | ASTM D5185m   |   | 0  | 0  |  |
| ADDITIVES   |  | method  | limit/base  | current  | history1   | history2   |
| Boron   | ppm  | ASTM D5185m   | 2   | 4  | 54   |  |
| Barium  | ppm  | ASTM D5185m   | 0   | 0  | 2  |  |
| Molybdenum  | ppm  | ASTM D5185m   | 50  | 61   | 119  |  |
|   | PP   |   |   | 01   | 110  |  |
| -   | ppm  | ASTM D5185m   | 0   | 1  | 6  |  |
| •   |  | ASTM D5185m<br>ASTM D5185m  | 0<br>950  | 1<br>891   | 6<br>670   |  |
| Magnesium<br>Calcium  | ppm  | ASTM D5185m   | 0   | 1<br>891<br>1027   | 6  |  |
| Magnesium<br>Calcium<br>Phosphorus  | ppm<br>ppm   | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  | 0<br>950<br>1050<br>995   | 1<br>891<br>1027<br>997  | 6<br>670<br>1239<br>712  |  |
| Magnesium<br>Calcium<br>Phosphorus<br>Zinc  | ppm<br>ppm<br>ppm  | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m   | 0<br>950<br>1050<br>995<br>1180   | 1<br>891<br>1027   | 6<br>670<br>1239<br>712<br>890   |  |
| Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                             | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  | 0<br>950<br>1050<br>995   | 1<br>891<br>1027<br>997  | 6<br>670<br>1239<br>712  |  |
| Magnesium<br>Calcium<br>Phosphorus<br>Zinc  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                             | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m   | 0<br>950<br>1050<br>995<br>1180   | 1<br>891<br>1027<br>997<br>1159  | 6<br>670<br>1239<br>712<br>890   | <br><br>   |
| Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINAN<br>Silicon   | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                             | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br><b>method</b><br>ASTM D5185m   | 0<br>950<br>1050<br>995<br>1180<br>2600   | 1<br>891<br>1027<br>997<br>1159<br>2805<br>current<br>7  | 6<br>670<br>1239<br>712<br>890<br>3054<br>history1<br>35   | <br><br><br>   |
| Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINAN<br>Silicon<br>Sodium   | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                             | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br><b>method</b><br>ASTM D5185m<br>ASTM D5185m  | 0<br>950<br>1050<br>995<br>1180<br>2600<br>limit/base<br>>25  | 1<br>891<br>1027<br>997<br>1159<br>2805<br>current   | 6<br>670<br>1239<br>712<br>890<br>3054<br>history1<br>35<br>7  | <br><br><br><br>history2                                 |
| Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINAN<br>Silicon<br>Sodium   | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>TS                       | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br><b>method</b><br>ASTM D5185m   | 0<br>950<br>1050<br>995<br>1180<br>2600<br>limit/base<br>>25  | 1<br>891<br>1027<br>997<br>1159<br>2805<br>current<br>7  | 6<br>670<br>1239<br>712<br>890<br>3054<br>history1<br>35   | <br><br><br><br>history2                                 |
| Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINAN<br>Silicon<br>Sodium   | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>TS                       | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br><b>method</b><br>ASTM D5185m<br>ASTM D5185m  | 0<br>950<br>1050<br>995<br>1180<br>2600<br>limit/base<br>>25  | 1<br>891<br>1027<br>997<br>1159<br>2805<br>current<br>7<br>2<br>35<br>current                                      | 6<br>670<br>1239<br>712<br>890<br>3054<br>history1<br>35<br>7<br>23<br>history1                        | <br><br><br>history2                                     |
| Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINAN<br>Silicon<br>Sodium<br>Potassium<br>INFRA-RED                                     | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>TS                       | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m   | 0<br>950<br>1050<br>995<br>1180<br>2600<br><b>limit/base</b><br>>25<br>>20  | 1<br>891<br>1027<br>997<br>1159<br>2805<br>current<br>7<br>2<br>35<br>current<br>0.7                               | 6<br>670<br>1239<br>712<br>890<br>3054<br>history1<br>35<br>7<br>23                                    | <br><br><br><br>history2<br><br>                         |
| Silicon<br>Sodium<br>Potassium  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m                              | 0<br>950<br>1050<br>995<br>1180<br>2600<br><b>limit/base</b><br>>25<br>>20<br><b>limit/base</b><br>>3             | 1<br>891<br>1027<br>997<br>1159<br>2805<br>current<br>7<br>2<br>35<br>current                                      | 6<br>670<br>1239<br>712<br>890<br>3054<br>history1<br>35<br>7<br>23<br>history1                        | <br><br><br>history2<br><br><br>history2                 |
| Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINAN<br>Silicon<br>Sodium<br>Potassium<br>INFRA-RED<br>Soot %                           | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | ASTM D5185m<br>ASTM D51854               | 0<br>950<br>1050<br>995<br>1180<br>2600<br><b>limit/base</b><br>>25<br>>20<br><b>limit/base</b><br>>3             | 1<br>891<br>1027<br>997<br>1159<br>2805<br>current<br>7<br>2<br>35<br>current<br>0.7                               | 6<br>670<br>1239<br>712<br>890<br>3054<br>history1<br>35<br>7<br>23<br>history1<br>0.6                 | <br><br><br>history2<br><br><br>history2                 |
| Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINAN<br>Silicon<br>Sodium<br>Potassium<br>INFRA-RED<br>Soot %<br>Nitration              | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | ASTM D5185m<br>ASTM D7844<br>*ASTM D7624 | 0<br>950<br>1050<br>995<br>1180<br>2600<br>limit/base<br>>25<br>>20<br>limit/base<br>>3<br>>20                    | 1<br>891<br>1027<br>997<br>1159<br>2805<br><u>current</u><br>7<br>2<br>35<br><u>current</u><br>0.7<br>10.5         | 6<br>670<br>1239<br>712<br>890<br>3054<br>history1<br>35<br>7<br>23<br>history1<br>0.6<br>11.3         | <br><br><br>history2<br><br><br>history2                 |
| Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINAN<br>Silicon<br>Sodium<br>Potassium<br>INFRA-RED<br>Soot %<br>Nitration<br>Sulfation | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | ASTM D5185m<br>ASTM D7844<br>*ASTM D7624 | 0<br>950<br>1050<br>995<br>1180<br>2600<br><b>imit/base</b><br>>25<br>>20<br><b>imit/base</b><br>>3<br>>20<br>>30 | 1<br>891<br>1027<br>997<br>1159<br>2805<br><u>current</u><br>7<br>2<br>35<br><u>current</u><br>0.7<br>10.5<br>20.7 | 6<br>670<br>1239<br>712<br>890<br>3054<br>history1<br>35<br>7<br>23<br>history1<br>0.6<br>11.3<br>21.1 | <br><br><br><br>history2<br><br>history2<br><br>history2 |



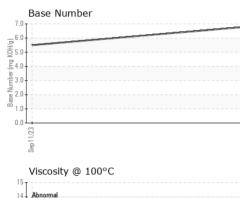
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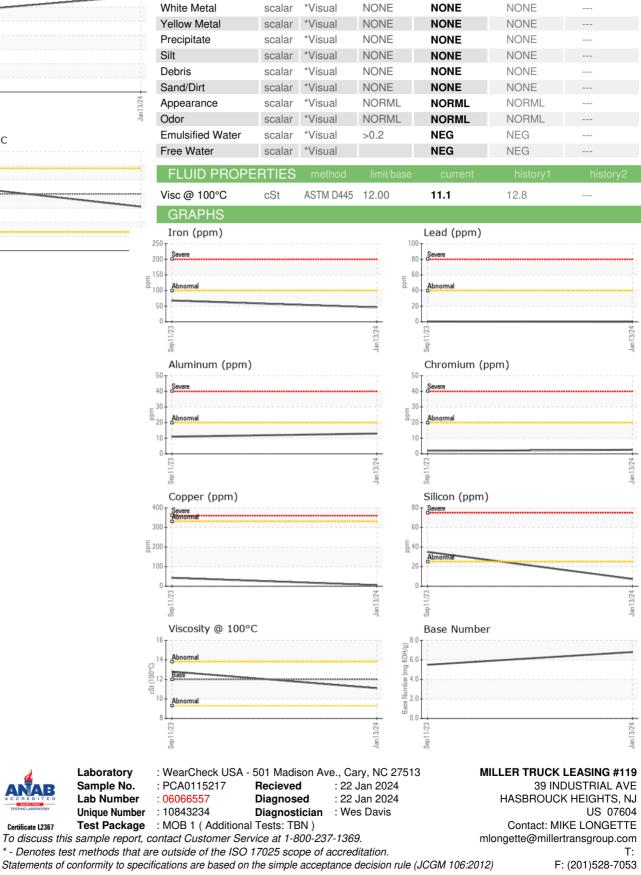
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# **OIL ANALYSIS REPORT**

VISUAL





Contact/Location: MIKE LONGETTE - MILRUT