

## **OIL ANALYSIS REPORT**

Sample Rating Trend







Machine Id **1924311** Component

# Diesel Engine

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

## DIAGNOSIS

#### Recommendation

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

### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

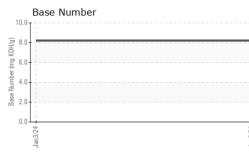
#### Fluid Condition

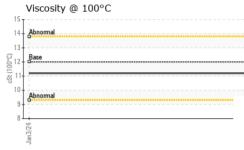
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

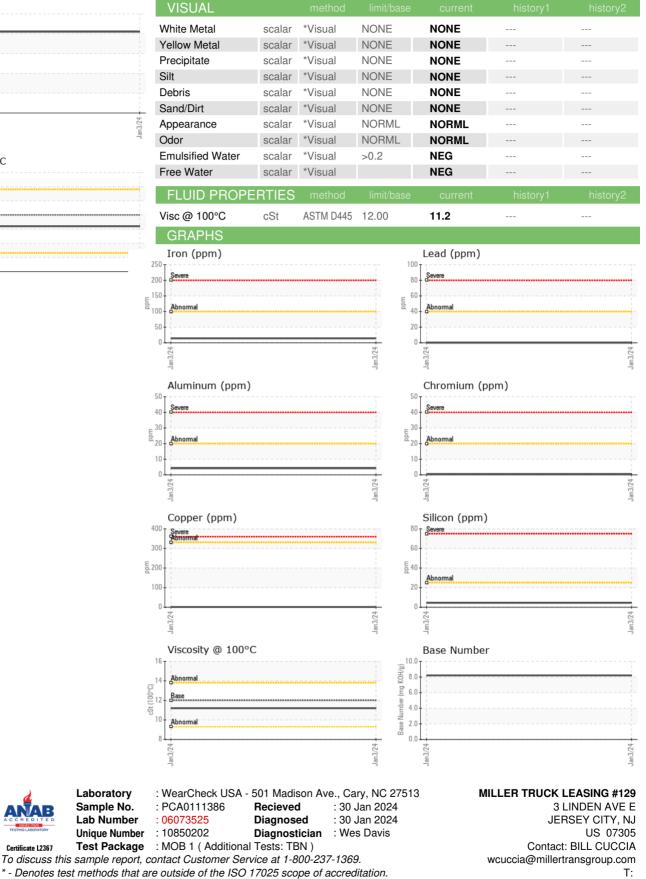
| SAMPLE INFORM   | MATION   | method  | limit/base   | current  | history1   | history2   |
|---|--|---|--|--|--|--|
| Sample Number   |  | Client Info   |  | PCA0111386   |  |  |
| Sample Date   |  | Client Info   |  | 03 Jan 2024  |  |  |
| Machine Age   | mls  | Client Info   |  | 0  |  |  |
| Oil Age   | mls  | Client Info   |  | 0  |  |  |
| Oil Changed   |  | Client Info   |  | Changed  |  |  |
| Sample Status   |  |   |  | NORMAL   |  |  |
| CONTAMINATI   | ION  | method  | limit/base   | current  | history1   | history2   |
| Fuel  |  | WC Method   | >5   | <1.0   |  |  |
| Water   |  | WC Method   | >0.2   | NEG  |  |  |
| Glycol  |  | WC Method   |  | NEG  |  |  |
| WEAR METAL  | S  | method  | limit/base   | current  | history1   | history2   |
| Iron  | ppm  | ASTM D5185m   | >100   | 14   |  |  |
| Chromium  | ppm  | ASTM D5185m   | >20  | <1   |  |  |
| Nickel  | ppm  | ASTM D5185m   | >4   | 0  |  |  |
| Titanium  | ppm  | ASTM D5185m   |  | <1   |  |  |
| Silver  | ppm  | ASTM D5185m   | >3   | 0  |  |  |
| Aluminum  | ppm  | ASTM D5185m   | >20  | 4  |  |  |
| Lead  | ppm  | ASTM D5185m   | >40  | 0  |  |  |
| Copper  | ppm  | ASTM D5185m   | >330   | 1  |  |  |
| Tin   | ppm  | ASTM D5185m   | >15  | 0  |  |  |
| Vanadium  | ppm  | ASTM D5185m   |  | <1   |  |  |
| Cadmium   | ppm  | ASTM D5185m   |  | 0  |  |  |
|   |  |   |  |  |  |  |
| ADDITIVES   |  | method  | limit/base   | current  | history1   | history2   |
| ADDITIVES<br>Boron  | ppm  | method<br>ASTM D5185m   | limit/base   | current<br>31  | history1   | history2   |
|   | ppm<br>ppm   | ASTM D5185m   |  |  | · · · · ·  |  |
| Boron   |  | ASTM D5185m   | 2  | 31   |  |  |
| Boron<br>Barium   | ppm  | ASTM D5185m<br>ASTM D5185m  | 2<br>0<br>50   | 31<br>0  |  |  |
| Boron<br>Barium<br>Molybdenum   | ppm<br>ppm   | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m   | 2<br>0<br>50   | 31<br>0<br>57  |  |  |
| Boron<br>Barium<br>Molybdenum<br>Manganese  | ppm<br>ppm<br>ppm  | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m   | 2<br>0<br>50<br>0  | 31<br>0<br>57<br>0   |  |  |
| Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium   | ppm<br>ppm<br>ppm<br>ppm   | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m   | 2<br>0<br>50<br>0<br>950   | 31<br>0<br>57<br>0<br>789  |  |  |
| Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium  | 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  | 2<br>0<br>50<br>0<br>950<br>1050   | 31<br>0<br>57<br>0<br>789<br>1193  | <br><br>   | <br><br>   |
| Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Phosphorus  | 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  | 2<br>0<br>50<br>0<br>950<br>1050<br>995  | 31<br>0<br>57<br>0<br>789<br>1193<br>897   | <br><br><br>   | <br><br><br>   |
| Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc  | 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   | 2<br>0<br>50<br>0<br>950<br>1050<br>995<br>1180  | 31<br>0<br>57<br>0<br>789<br>1193<br>897<br>1173   | <br><br><br>   |  |
| Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur  | 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  | 2<br>0<br>50<br>0<br>950<br>1050<br>995<br>1180<br>2600  | 31<br>0<br>57<br>0<br>789<br>1193<br>897<br>1173<br>3047   |  |  |
| Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINAN  | 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  | 2<br>0<br>50<br>950<br>1050<br>995<br>1180<br>2600   | 31<br>0<br>57<br>0<br>789<br>1193<br>897<br>1173<br>3047<br>current  | <br><br><br><br><br>history1   | <br><br><br><br><br>history2   |
| Boron<br>Barium<br>Molybdenum<br>Manganese<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<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   | 2<br>0<br>50<br>950<br>1050<br>995<br>1180<br>2600<br><b>imit/base</b><br>>25  | 31<br>0<br>57<br>0<br>789<br>1193<br>897<br>1173<br>3047<br>current<br>4   | <br><br><br><br>history1   | <br><br><br><br><br>history2   |
| Boron<br>Barium<br>Molybdenum<br>Manganese<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<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<br>ASTM D5185m  | 2<br>0<br>50<br>950<br>1050<br>995<br>1180<br>2600<br><b>imit/base</b><br>>25  | 31<br>0<br>57<br>0<br>789<br>1193<br>897<br>1173<br>3047<br><u>current</u><br>4<br>2   | <br><br><br><br><br>history1   | <br><br><br><br><br>history2   |
| Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINAN<br>Silicon<br>Sodium<br>Potassium  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>TS                      | ASTM D5185m<br>ASTM D5185m   | 2<br>0<br>50<br>0<br>950<br>1050<br>995<br>1180<br>2600<br><b>imit/base</b><br>>25<br>>20  | 31<br>0<br>57<br>0<br>789<br>1193<br>897<br>1173<br>3047<br><u>current</u><br>4<br>2<br>2  | <br><br><br><br><br>history1<br><br>   | <br><br><br><br><br>history2   |
| Boron<br>Barium<br>Molybdenum<br>Manganese<br>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>ppm<br>TS<br>ppm<br>ppm        | ASTM D5185m<br>ASTM D5185m   | 2<br>0<br>50<br>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>                      | 31<br>0<br>57<br>0<br>789<br>1193<br>897<br>1173<br>3047<br>current<br>4<br>2<br>2<br>2  | <br><br><br><br><br>history1<br><br><br>history1                                 | <br><br><br><br>history2<br><br><br>history2                                 |
| Boron<br>Barium<br>Molybdenum<br>Manganese<br>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>TS<br>ppm<br>ppm<br>ppm | ASTM D5185m<br>ASTM D5185m   | 2<br>0<br>50<br>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                | 31<br>0<br>57<br>0<br>789<br>1193<br>897<br>1173<br>3047<br><i>current</i><br>4<br>2<br>2<br>2<br><i>current</i><br>0.4                | <br><br><br><br><br>history1<br><br><br>history1<br>                             | <br><br><br><br><br>history2<br><br>history2                                 |
| Boron<br>Barium<br>Molybdenum<br>Manganese<br>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 D5185m                              | 2<br>0<br>50<br>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         | 31<br>0<br>57<br>0<br>789<br>1193<br>897<br>1173<br>3047<br><i>current</i><br>4<br>2<br>2<br>2<br><i>current</i><br>0.4<br>8.5         | <br><br><br><br><br>history1<br><br><br>history1                                 | <br><br><br><br><br>history2<br><br><br>history2                             |
| Boron<br>Barium<br>Molybdenum<br>Manganese<br>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 D7844<br>*ASTM D7844 | 2<br>0<br>50<br>0<br>950<br>1050<br>995<br>1180<br>2600<br>2600<br>25<br>20<br>220<br>20<br>1<br>init/base<br>>3<br>20<br>30<br>30 | 31<br>0<br>57<br>0<br>789<br>1193<br>897<br>1173<br>3047<br>current<br>4<br>2<br>2<br>2<br>current<br>0.4<br>8.5<br>18.7<br>current    | <br><br><br><br><br>history1<br><br><br>history1<br><br>history1<br><br>history1 | <br><br><br><br><br>history2<br><br>history2<br><br>history2<br><br>history2 |
| Boron<br>Barium<br>Molybdenum<br>Manganese<br>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 D5185m               | 2<br>0<br>50<br>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   | 31<br>0<br>57<br>0<br>789<br>1193<br>897<br>1173<br>3047<br><b>current</b><br>4<br>2<br>2<br>2<br><b>current</b><br>0.4<br>8.5<br>18.7 | <br><br><br><br><br>history1<br><br>history1<br><br>history1                     | <br><br><br><br><br>history2<br><br>history2<br><br>history2                 |



# **OIL ANALYSIS REPORT**







Certificate L2367

Laboratory

Sample No.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

F: