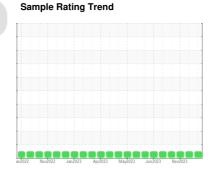


# **OIL ANALYSIS REPORT**



PETRO CANADA DURON SHP 15W40 (--- LTR)





## DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

### Contamination

There is no indication of any contamination in the

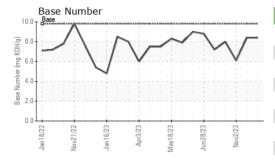
### **Fluid Condition**

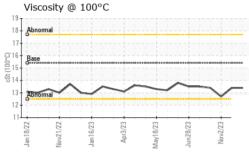
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| SAMPLE INFORI  | MATION   | method   | limit/base   | current  | history1   | history2  |
|--|--|--|--|--|--|---|
| Sample Number  |  | Client Info  |  | GFL0091263   | GFL0091286   | GFL0087974  |
| Sample Date  |  | Client Info  |  | 06 Dec 2023  | 21 Nov 2023  | 02 Nov 2023   |
| Machine Age  | hrs  | Client Info  |  | 23237  | 23139  | 22498   |
| Oil Age  | hrs  | Client Info  |  | 739  | 641  | 22498   |
| Oil Changed  |  | Client Info  |  | Not Changd   | Not Changd   | Changed   |
| Sample Status  |  |  |  | NORMAL   | NORMAL   | NORMAL  |
| CONTAMINAT   | ION  | method   | limit/base   | current  | history1   | history2  |
| Fuel   |  | WC Method  | >3.0   | <1.0   | <1.0   | <1.0  |
| Water  |  | WC Method  | >0.2   | NEG  | NEG  | NEG   |
| Glycol   |  | WC Method  |  | NEG  | NEG  | NEG   |
| WEAR METAL   | S  | method   | limit/base   | current  | history1   | history2  |
| Iron   | ppm  | ASTM D5185m  | >120   | 3  | 4  | 10  |
| Chromium   | ppm  | ASTM D5185m  |  | 0  | <1   | <1  |
| Nickel   | ppm  | ASTM D5185m  | >5   | 0  | <1   | <1  |
| Titanium   | ppm  | ASTM D5185m  |  | 0  | <1   | <1  |
| Silver   | ppm  | ASTM D5185m  | >2   | 0  | 0  | 0   |
| Aluminum   | ppm  | ASTM D5185m  |  | 2  | 2  | 3   |
| Lead   | ppm  | ASTM D5185m  | >40  | 0  | <1   | 1   |
| Copper   | ppm  | ASTM D5185m  | >330   | <1   | 1  | 2   |
| Tin  | ppm  | ASTM D5185m  | >15  | 0  | <1   | <1  |
| Vanadium   | ppm  | ASTM D5185m  |  | 0  | 0  | 0   |
| Cadmium  | ppm  | ASTM D5185m  |  | 0  | <1   | <1  |
|  |  |  |  |  |  |   |
| ADDITIVES  |  | method   |  |  |  | history2  |
| ADDITIVES<br>Boron   | ppm  | method ASTM D5185m   | limit/base   | current<br>2   | history1<br>4  | history2<br>9   |
|  | ppm  |  | 0  |  |  |   |
| Boron  | •                            | ASTM D5185m  | 0  | 2  | 4  | 9   |
| Boron<br>Barium<br>Molybdenum  | ppm  | ASTM D5185m<br>ASTM D5185m   | 0<br>0<br>60   | 2<br>0   | 4 <1   | 9   |
| Boron<br>Barium  | ppm<br>ppm   | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  | 0<br>0<br>60   | 2<br>0<br>59   | 4<br><1<br>61  | 9<br>5<br>60  |
| Boron<br>Barium<br>Molybdenum<br>Manganese   | ppm<br>ppm   | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m   | 0<br>0<br>60<br>0  | 2<br>0<br>59   | 4<br><1<br>61<br><1  | 9<br>5<br>60<br><1  |
| Boron Barium Molybdenum Manganese Magnesium  | ppm<br>ppm<br>ppm  | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  | 0<br>0<br>60<br>0<br>1010  | 2<br>0<br>59<br>0<br>929   | 4<br><1<br>61<br><1<br>910   | 9<br>5<br>60<br><1<br>781   |
| Boron Barium Molybdenum Manganese Magnesium Calcium  | ppm<br>ppm<br>ppm<br>ppm   | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m   | 0<br>0<br>60<br>0<br>1010<br>1070  | 2<br>0<br>59<br>0<br>929<br>1047   | 4<br><1<br>61<br><1<br>910<br>1086   | 9<br>5<br>60<br><1<br>781<br>1207                                     |
| Boron Barium Molybdenum Manganese Magnesium Calcium 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<br>ASTM D5185m  | 0<br>0<br>60<br>0<br>1010<br>1070<br>1150  | 2<br>0<br>59<br>0<br>929<br>1047<br>976  | 4 <1 61 <1 910 1086 963  | 9<br>5<br>60<br><1<br>781<br>1207<br>944                              |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus 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<br>ASTM D5185m<br>ASTM D5185m  | 0<br>0<br>60<br>0<br>1010<br>1070<br>1150<br>1270  | 2<br>0<br>59<br>0<br>929<br>1047<br>976<br>1211  | 4<br><1<br>61<br><1<br>910<br>1086<br>963<br>1159                                  | 9<br>5<br>60<br><1<br>781<br>1207<br>944<br>1158                      |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc 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<br>ASTM D5185m<br>ASTM D5185m   | 0<br>0<br>60<br>0<br>1010<br>1070<br>1150<br>1270<br>2060  | 2<br>0<br>59<br>0<br>929<br>1047<br>976<br>1211<br>3092  | 4 <1 61 <1 910 1086 963 1159 3271  | 9<br>5<br>60<br><1<br>781<br>1207<br>944<br>1158<br>2851              |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm               | ASTM D5185m  | 0<br>0<br>60<br>0<br>1010<br>1070<br>1150<br>1270<br>2060  | 2<br>0<br>59<br>0<br>929<br>1047<br>976<br>1211<br>3092<br>current   | 4 <1 61 <1 910 1086 963 1159 3271 history1   | 9 5 60 <1 781 1207 944 1158 2851 history2                             |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | ASTM D5185m  | 0<br>0<br>60<br>0<br>1010<br>1070<br>1150<br>1270<br>2060<br>limit/base  | 2<br>0<br>59<br>0<br>929<br>1047<br>976<br>1211<br>3092<br>current   | 4 <1 61 <1 910 1086 963 1159 3271 history1 5                                       | 9 5 60 <1 781 1207 944 1158 2851 history2                             |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium   | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | ASTM D5185m  | 0<br>0<br>60<br>0<br>1010<br>1070<br>1150<br>1270<br>2060<br>limit/base  | 2<br>0<br>59<br>0<br>929<br>1047<br>976<br>1211<br>3092<br>current<br>5  | 4 <1 61 <1 910 1086 963 1159 3271 history1 5 7                                     | 9 5 60 <1 781 1207 944 1158 2851 history2 9                           |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium   | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | ASTM D5185m  | 0<br>0<br>60<br>0<br>1010<br>1070<br>1150<br>1270<br>2060<br>limit/base<br>>25   | 2<br>0<br>59<br>0<br>929<br>1047<br>976<br>1211<br>3092<br>current<br>5<br>10<br><1                                  | 4 <1 61 <1 910 1086 963 1159 3271 history1 5 7 3                                   | 9 5 60 <1 781 1207 944 1158 2851 history2 9 9 5                       |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED   | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | ASTM D5185m  | 0<br>0<br>60<br>0<br>1010<br>1070<br>1150<br>1270<br>2060<br>limit/base<br>>25   | 2<br>0<br>59<br>0<br>929<br>1047<br>976<br>1211<br>3092<br>current<br>5<br>10<br><1                                  | 4 <1 61 61 910 1086 963 1159 3271 history1 5 7 3 history1                          | 9 5 60 <1 781 1207 944 1158 2851 history2 9 9 5                       |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %                                  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | ASTM D5185m  method  *ASTM D5185m  *ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  *ASTM D5185m   | 0<br>0<br>60<br>0<br>1010<br>1070<br>1150<br>1270<br>2060<br>limit/base<br>>25<br>>20<br>limit/base                                  | 2<br>0<br>59<br>0<br>929<br>1047<br>976<br>1211<br>3092<br>current<br>5<br>10<br><1                                  | 4 <1 61 61 910 1086 963 1159 3271 history1 5 7 3 history1 0.2                      | 9 5 60 <1 781 1207 944 1158 2851 history2 9 5 history2 0.4            |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration                        | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | ASTM D5185m  Method  *ASTM D5185m ASTM D7844  *ASTM D7624  *ASTM D7415 | 0<br>0<br>60<br>0<br>1010<br>1070<br>1150<br>1270<br>2060<br>limit/base<br>>25<br>>20<br>limit/base                                  | 2<br>0<br>59<br>0<br>929<br>1047<br>976<br>1211<br>3092<br>current<br>5<br>10<br><1<br>current<br>0.2<br>6.7         | 4 <1 61 61 910 1086 963 1159 3271 history1 5 7 3 history1 0.2 6.0                  | 9 5 60 <1 781 1207 944 1158 2851 history2 9 9 5 history2 0.4 9.7      |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE | ppm                            | ASTM D5185m  Method  ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m  Method  *ASTM D7844  *ASTM D7844  *ASTM D7844  *ASTM D7844  *ASTM D7844                                      | 0<br>0<br>0<br>0<br>1010<br>1070<br>1150<br>1270<br>2060<br>limit/base<br>>25<br>>20<br>limit/base<br>>4<br>>20<br>>30<br>limit/base | 2<br>0<br>59<br>0<br>929<br>1047<br>976<br>1211<br>3092<br>current<br>5<br>10<br><1<br>current<br>0.2<br>6.7<br>18.0 | 4 <1 61 61 71 910 1086 963 1159 3271 history1 5 7 3 history1 0.2 6.0 17.7 history1 | 9 5 60 <1 781 1207 944 1158 2851 history2 9 9 5 history2 0.4 9.7 21.1 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation              | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | ASTM D5185m  Method  *ASTM D5185m ASTM D7844  *ASTM D7624  *ASTM D7415 | 0<br>0<br>0<br>0<br>1010<br>1070<br>1150<br>1270<br>2060<br>limit/base<br>>25<br>>20<br>limit/base<br>>4<br>>20<br>>30<br>limit/base | 2<br>0<br>59<br>0<br>929<br>1047<br>976<br>1211<br>3092<br>current<br>5<br>10<br><1<br>current<br>0.2<br>6.7<br>18.0 | 4 <1 61 61 910 1086 963 1159 3271 history1 5 7 3 history1 0.2 6.0 17.7             | 9 5 60 <1 781 1207 944 1158 2851 history2 9 9 5 history2 0.4 9.7 21.1 |



# **OIL ANALYSIS REPORT**

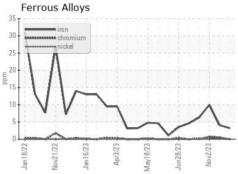


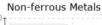


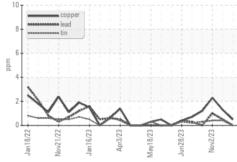
| VISUAL                  |        | method  | limit/base | current | history1 | history2 |
|-------------------------|--------|---------|------------|---------|----------|----------|
| White Metal             | scalar | *Visual | NONE       | NONE    | NONE     | NONE     |
| Yellow Metal            | scalar | *Visual | NONE       | NONE    | NONE     | NONE     |
| Precipitate             | scalar | *Visual | NONE       | NONE    | NONE     | NONE     |
| Silt                    | scalar | *Visual | NONE       | NONE    | NONE     | NONE     |
| Debris                  | scalar | *Visual | NONE       | NONE    | LIGHT    | NONE     |
| Sand/Dirt               | scalar | *Visual | NONE       | NONE    | NONE     | NONE     |
| Appearance              | scalar | *Visual | NORML      | NORML   | NORML    | NORML    |
| Odor                    | scalar | *Visual | NORML      | NORML   | NORML    | NORML    |
| <b>Emulsified Water</b> | scalar | *Visual | >0.2       | NEG     | NEG      | NEG      |
| Free Water              | scalar | *Visual |            | NEG     | NEG      | NEG      |

| FLUID PROPE  | ERTIES | method    |      |      |      | history2 |
|--------------|--------|-----------|------|------|------|----------|
| Visc @ 100°C | cSt    | ASTM D445 | 15.4 | 13.4 | 13.4 | 12.7     |

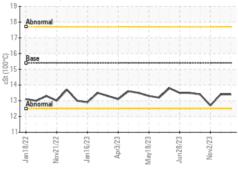
### **GRAPHS**

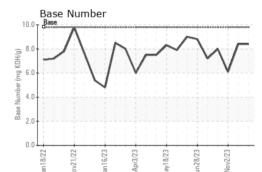
















Certificate L2367

Laboratory Sample No. Lab Number Test Package : FLEET

Unique Number : 10779981

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0091263 : 06030190

Received : 11 Dec 2023 Diagnosed : 12 Dec 2023 Diagnostician : Wes Davis

GFL Environmental - 955 - Montgomery

1121 Wilbanks St Montgomery, AL US 36108

Contact: LISA REEVES

To discuss this sample report, contact Customer Service at 1-800-237-1369.

\* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

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

T:

F: