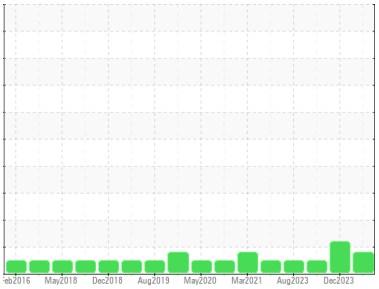
# OIL ANALYSIS REPORT

Machine Id
**7980**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (19 LTR)**

Sample Rating Trend




**FUEL**

## DIAGNOSIS

**Recommendation**
No corrective action is recommended at this time. Resample at the next service interval to monitor.

**Wear**
All component wear rates are normal.

**Contamination**
Light fuel dilution occurring. No other contaminants were detected in the oil.

**Fluid Condition**
The condition of the oil is acceptable for the time in service.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **WC0875109** | WC0875105 | GFL0094210 |
| Sample Date | | Client Info | | **13 Dec 2023** | 06 Dec 2023 | 03 Oct 2023 |
| Machine Age | kms | Client Info | | **194946** | 194946 | 143821 |
| Oil Age | kms | Client Info | | **194946** | 0 | 0 |
| Oil Changed | | Client Info | | **N/A** | Changed | Changed |
| Sample Status | | | | **MARGINAL** | ABNORMAL | NORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Water | | WC Method | >0.2 | **NEG** | NEG | NEG |
| Glycol | | WC Method | | **NEG** | NEG | NEG |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185(m) | >80 | **6** | 21 | 24 |
| Chromium | ppm | ASTM D5185(m) | >5 | **0** | <1 | <1 |
| Nickel | ppm | ASTM D5185(m) | >2 | **0** | <1 | 0 |
| Titanium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185(m) | >3 | **<1** | <1 | <1 |
| Aluminum | ppm | ASTM D5185(m) | >30 | **1** | 2 | 3 |
| Lead | ppm | ASTM D5185(m) | >30 | **0** | <1 | <1 |
| Copper | ppm | ASTM D5185(m) | >150 | **<1** | <1 | 2 |
| Tin | ppm | ASTM D5185(m) | >5 | **0** | 0 | 0 |
| Antimony | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Vanadium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Beryllium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |

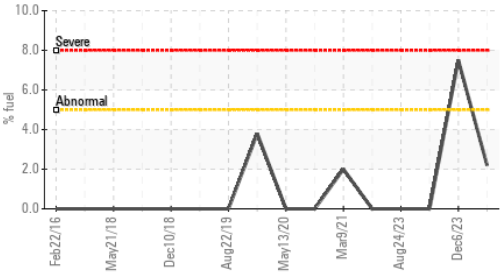
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185(m) | 0 | **24** | 39 | 3 |
| Barium | ppm | ASTM D5185(m) | 0 | **<1** | <1 | <1 |
| Molybdenum | ppm | ASTM D5185(m) | 60 | **60** | 59 | 57 |
| Manganese | ppm | ASTM D5185(m) | 0 | **0** | 0 | 0 |
| Magnesium | ppm | ASTM D5185(m) | 1010 | **910** | 793 | 908 |
| Calcium | ppm | ASTM D5185(m) | 1070 | **1010** | 1005 | 1016 |
| Phosphorus | ppm | ASTM D5185(m) | 1150 | **972** | 899 | 973 |
| Zinc | ppm | ASTM D5185(m) | 1270 | **1166** | 1094 | 1155 |
| Sulfur | ppm | ASTM D5185(m) | 2060 | **2582** | 2312 | 2418 |
| Lithium | ppm | ASTM D5185(m) | | **<1** | <1 | <1 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185(m) | >20 | **4** | 5 | 4 |
| Sodium | ppm | ASTM D5185(m) | | **3** | 5 | 6 |
| Potassium | ppm | ASTM D5185(m) | >20 | **0** | <1 | <1 |
| Fuel | % | ASTM D7593* | >5 | ▲ **2.2** | ▲ 7.5 | <1.0 |

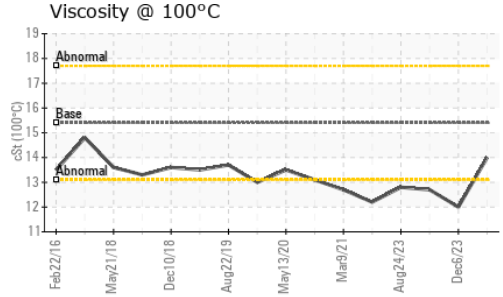
| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | ASTM D7844* | >3 | **0** | 0.3 | 0.3 |
| Nitration | Abs/cm | ASTM D7624* | >20 | **5.4** | 9.3 | 9.0 |
| Sulfation | Abs/.1mm | ASTM D7415* | >30 | **18.2** | 20.2 | 19.5 |

# OIL ANALYSIS REPORT

Fuel Dilution




Viscosity @ 100°C



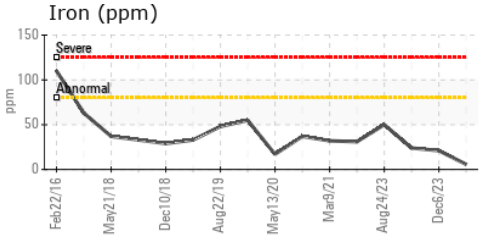

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | ASTM D7414* | >25 | **13.7** | 17.4 | 16.3 |

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

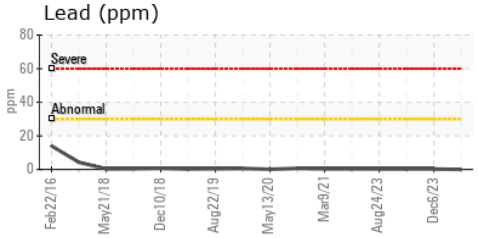
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D7279(m) | 15.4 | **14.0** | ▲ 12.0 | 12.7 |

## GRAPHS

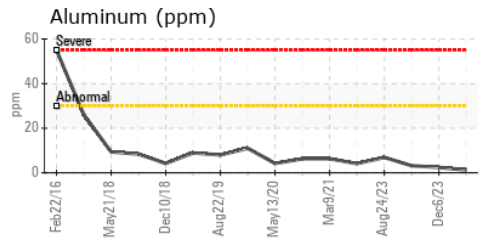
Iron (ppm)



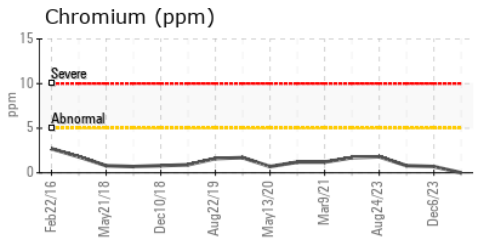

Lead (ppm)



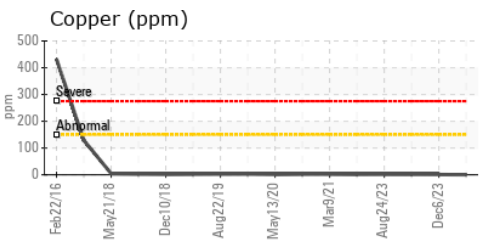

Aluminum (ppm)



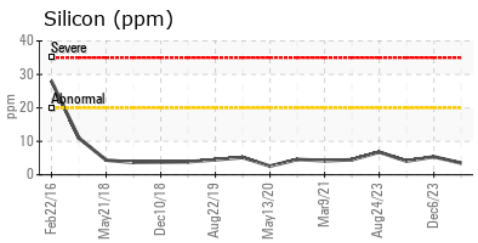

Chromium (ppm)



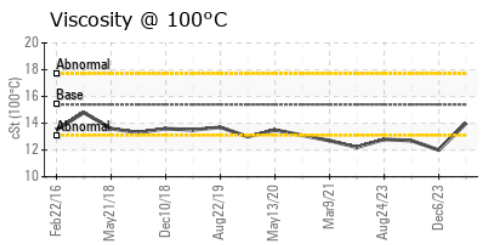

Copper (ppm)



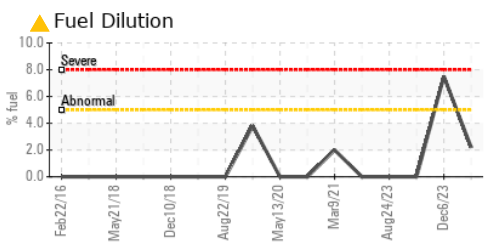

Silicon (ppm)




Viscosity @ 100°C




Fuel Dilution




ISO 17025:2017 Accredited Laboratory

**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
**Sample No.** : WC0875109
**Lab Number** : 02603052
**Unique Number** : 5696137
**Test Package** : MOB 1 ( Additional Tests: PercentFuel, Visual )

**Recieved** : 14 Dec 2023
**Diagnosed** : 15 Dec 2023
**Diagnostician** : Wes Davis

*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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Submitted By: Scott Ewan