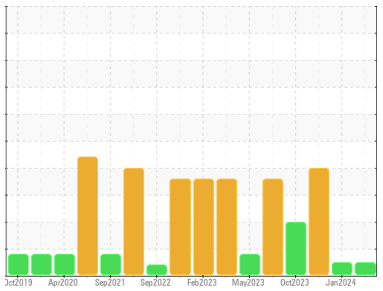
# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Area
**(19C418)**
Machine Id
**422021-402156**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (--- GAL)**

## DIAGNOSIS

**Recommendation**
Resample at the next service interval to monitor.

**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 INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **GFL0093575** | GFL0093559 | GFL0093548 |
| Sample Date | | Client Info | | **01 Feb 2024** | 02 Jan 2024 | 15 Nov 2023 |
| Machine Age | hrs | Client Info | | **6865** | 6781 | 6725 |
| Oil Age | hrs | Client Info | | **140** | 56 | 370 |
| Oil Changed | | Client Info | | **Not Changd** | Not Changd | Changed |
| Sample Status | | | | **NORMAL** | NORMAL | SEVERE |

| CONTAMINATION | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Fuel | WC Method | >3.0 | **<1.0** | 2.2 | ▲ 5.2 |
| 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 D5185m | >120 | **11** | 6 | 21 |
| Chromium | ppm | ASTM D5185m | >20 | **<1** | 0 | <1 |
| Nickel | ppm | ASTM D5185m | >5 | **<1** | <1 | 0 |
| Titanium | ppm | ASTM D5185m | >2 | **<1** | <1 | <1 |
| Silver | ppm | ASTM D5185m | >2 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | **<1** | 2 | <1 |
| Lead | ppm | ASTM D5185m | >40 | **2** | <1 | 2 |
| Copper | ppm | ASTM D5185m | >330 | **1** | <1 | 3 |
| Tin | ppm | ASTM D5185m | >15 | **<1** | <1 | <1 |
| Vanadium | ppm | ASTM D5185m | | **0** | <1 | <1 |
| Cadmium | ppm | ASTM D5185m | | **<1** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 0 | **1** | 3 | 2 |
| Barium | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 60 | **58** | 55 | 56 |
| Manganese | ppm | ASTM D5185m | 0 | **<1** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 1010 | **958** | 921 | 894 |
| Calcium | ppm | ASTM D5185m | 1070 | **973** | 971 | 1045 |
| Phosphorus | ppm | ASTM D5185m | 1150 | **926** | 1058 | 945 |
| Zinc | ppm | ASTM D5185m | 1270 | **1211** | 1241 | 1157 |
| Sulfur | ppm | ASTM D5185m | 2060 | **3001** | 3139 | 2759 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **5** | 4 | 3 |
| Sodium | ppm | ASTM D5185m | | **0** | 2 | 2 |
| Potassium | ppm | ASTM D5185m | >20 | **2** | 2 | 0 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >4 | **2** | 1.2 | ⬢ 6.1 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **6.2** | 5.1 | 13.2 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **20.4** | 19.0 | 31.7 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **13.0** | 12.4 | 21.4 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **8.9** | 8.9 | ▲ 0.0 |

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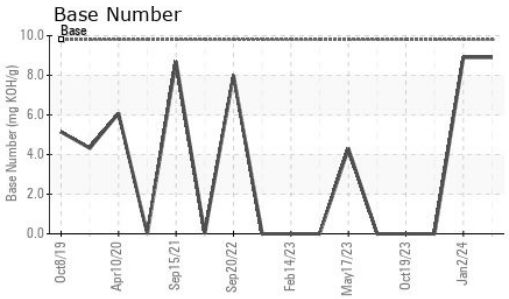
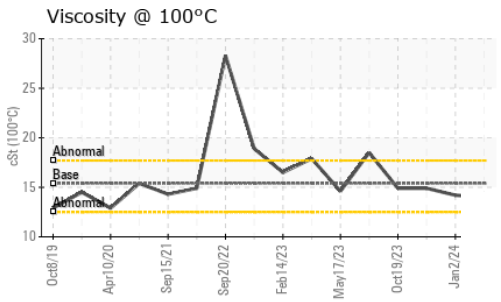
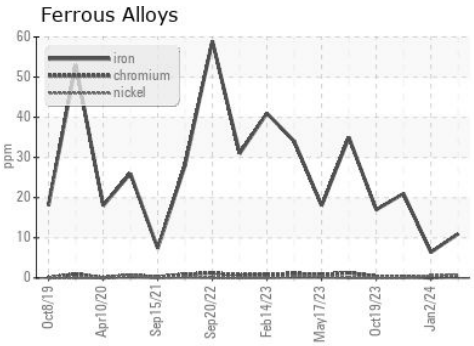


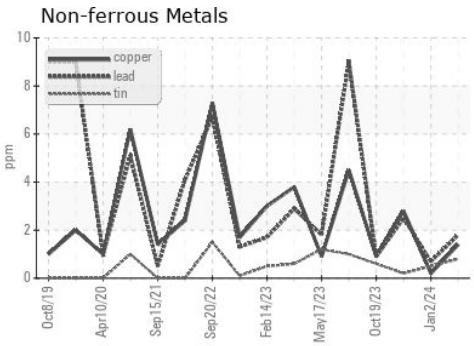



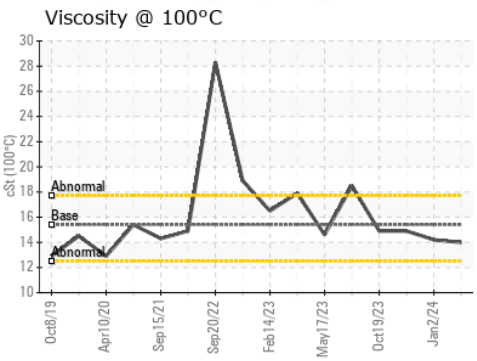

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Silt | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Debris | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Sand/Dirt | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Appearance | scalar | *Visual | NORML | **NORML** | 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 |

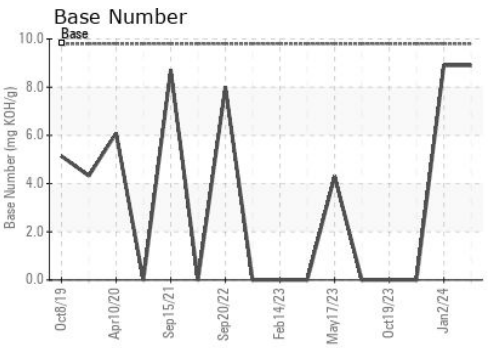
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | **14.0** | 14.2 | 14.9 |

## GRAPHS




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0093575
**Lab Number** : 06078896
**Unique Number** : 10860987
**Test Package** : FLEET

**Recieved** : 02 Feb 2024
**Diagnosed** : 05 Feb 2024
**Diagnostician** : Wes Davis

*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)*

**GFL Environmental - 892 - Pauls Valley Hauling**
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Pauls Valley, OK
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Contact: Tony Graham
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T:
F:

Report Id: GFL892 [WUSCAR] 06078896 (Generated: 02/05/2024 12:01:09) Rev: 1

Submitted By: Andy Smith