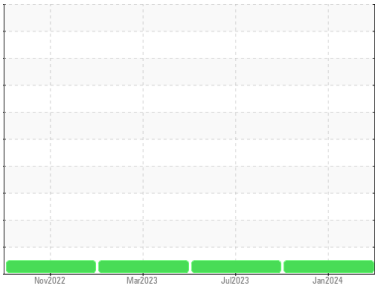
# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Machine Id
**829079**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (8 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 | | **GFL0108611** | GFL0066181 | GFL0066108 |
| Sample Date | | Client Info | | **29 Jan 2024** | 17 Jul 2023 | 16 Mar 2023 |
| Machine Age | hrs | Client Info | | **16854** | 623946 | 0 |
| Oil Age | hrs | Client Info | | **500** | 0 | 0 |
| Oil Changed | | Client Info | | **Changed** | N/A | N/A |
| Sample Status | | | | **NORMAL** | NORMAL | NORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Fuel | | WC Method | >2.0 | **<1.0** | <1.0 | <1.0 |
| 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 | >100 | **42** | 11 | 52 |
| Chromium | ppm | ASTM D5185m | >20 | **2** | <1 | 4 |
| Nickel | ppm | ASTM D5185m | >4 | **0** | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | **<1** | 0 | <1 |
| Silver | ppm | ASTM D5185m | >3 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | **2** | 1 | <1 |
| Lead | ppm | ASTM D5185m | >40 | **6** | <1 | 1 |
| Copper | ppm | ASTM D5185m | >330 | **1** | <1 | 1 |
| Tin | ppm | ASTM D5185m | >15 | **<1** | 0 | <1 |
| Vanadium | ppm | ASTM D5185m | | **0** | <1 | <1 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 0 | **6** | 12 | 8 |
| Barium | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 60 | **65** | 61 | 59 |
| Manganese | ppm | ASTM D5185m | 0 | **<1** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 1010 | **1050** | 960 | 871 |
| Calcium | ppm | ASTM D5185m | 1070 | **1229** | 1147 | 1082 |
| Phosphorus | ppm | ASTM D5185m | 1150 | **1126** | 1007 | 959 |
| Zinc | ppm | ASTM D5185m | 1270 | **1355** | 1227 | 1149 |
| Sulfur | ppm | ASTM D5185m | 2060 | **3242** | 3800 | 3262 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **10** | 8 | 8 |
| Sodium | ppm | ASTM D5185m | | **5** | 4 | 4 |
| Potassium | ppm | ASTM D5185m | >20 | **1** | 2 | <1 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **1.4** | 0.5 | 2.3 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **9.9** | 6.0 | 12.5 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **22.3** | 18.8 | 24.1 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **18.0** | 14.0 | 19.3 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **9.0** | 9.2 | 9.4 |

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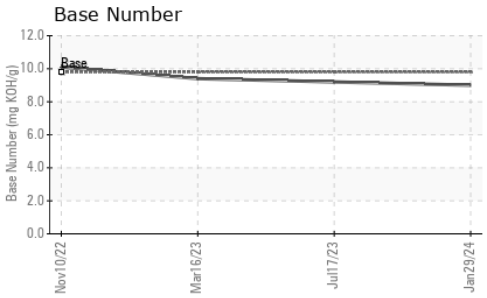
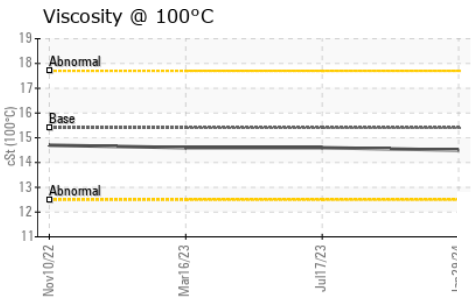
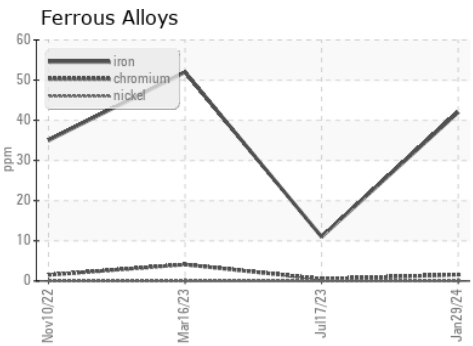


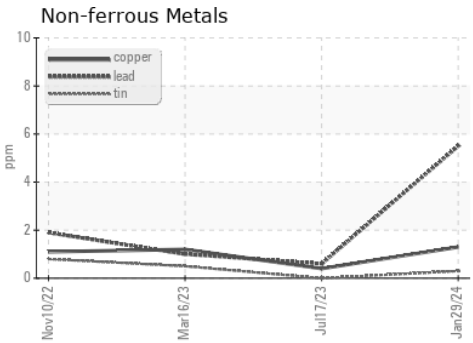



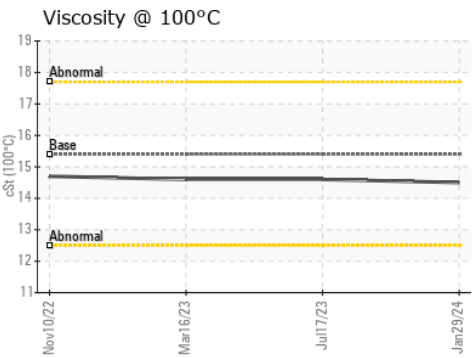

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| 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 |

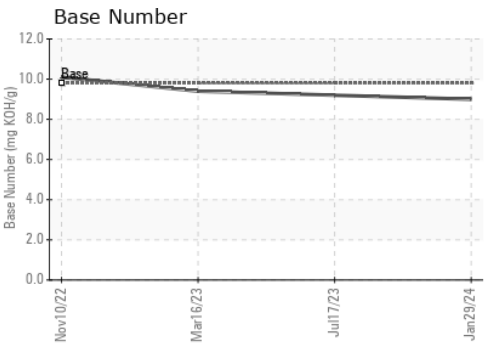
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | **14.5** | 14.6 | 14.6 |

## GRAPHS




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0108611
**Lab Number** : 06098988
**Unique Number** : 10897218
**Test Package** : FLEET

**Received** : 23 Feb 2024
**Tested** : 26 Feb 2024
**Diagnosed** : 26 Feb 2024 - Wes Davis

**GFL Environmental - 904B - Menomonie**
1706 MIDWAY RD
MENOMONIE, WI
US 54751
Contact: ANDY KANE
T: (715)202-3420
F:

*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)*

Report Id: GFL904B [WUSCAR] 06098988 (Generated: 02/26/2024 10:07:07) Rev: 1

Submitted By: See also GFL904,A,B,C, 927, 938 - Andy Kane