

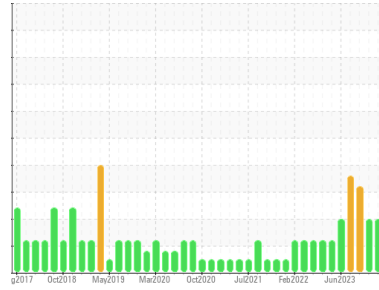


OIL ANALYSIS REPORT



Area
(MK2802)
 Machine Id
2422
 Component
Diesel Engine
 Fluid
PETRO CANADA DURON SHP 15W40 (9 GAL)

Sample Rating Trend



GLYCOL



DIAGNOSIS

▲ Recommendation

We advise that you check the fuel injection system. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

▲ Contamination

Sodium and/or potassium levels are high. There is a moderate amount of fuel present in the oil. Test for glycol is negative.

● Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil.

SAMPLE INFORMATION

| method | limit/base | current | history1 | history2 |
|---------------|-------------|--------------------|-------------|-------------|
| Sample Number | Client Info | GFL0094898 | GFL0090132 | GFL0075179 |
| Sample Date | Client Info | 20 May 2024 | 15 Feb 2024 | 24 Nov 2023 |
| Machine Age | hrs | 33861 | 33266 | 32605 |
| Oil Age | hrs | 33861 | 661 | 32605 |
| Oil Changed | Client Info | Changed | Changed | Changed |
| Sample Status | | ABNORMAL | ABNORMAL | ABNORMAL |

CONTAMINATION

| method | limit/base | current | history1 | history2 |
|--------|------------|------------|----------|----------|
| Water | WC Method | NEG | NEG | NEG |

WEAR METALS

| method | limit/base | current | history1 | history2 | |
|----------|------------|------------------|--------------|----------|----|
| Iron | ppm | ASTM D5185m >120 | 12 | 6 | 7 |
| Chromium | ppm | ASTM D5185m >20 | 0 | 0 | 0 |
| Nickel | ppm | ASTM D5185m >5 | <1 | <1 | <1 |
| Titanium | ppm | ASTM D5185m >2 | 0 | <1 | 0 |
| Silver | ppm | ASTM D5185m >2 | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m >20 | 2 | 1 | 2 |
| Lead | ppm | ASTM D5185m >40 | 0 | 0 | <1 |
| Copper | ppm | ASTM D5185m >330 | 3 | 1 | 1 |
| Tin | ppm | ASTM D5185m >15 | <1 | <1 | <1 |
| Vanadium | ppm | ASTM D5185m | 0 | 0 | <1 |
| Cadmium | ppm | ASTM D5185m | 0 | 0 | 0 |

ADDITIVES

| method | limit/base | current | history1 | history2 | |
|------------|------------|------------------|--------------|----------|------|
| Boron | ppm | ASTM D5185m 0 | 3 | 5 | 6 |
| Barium | ppm | ASTM D5185m 0 | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m 60 | 62 | 73 | 72 |
| Manganese | ppm | ASTM D5185m 0 | <1 | 0 | 0 |
| Magnesium | ppm | ASTM D5185m 1010 | 921 | 870 | 926 |
| Calcium | ppm | ASTM D5185m 1070 | 1037 | 954 | 1052 |
| Phosphorus | ppm | ASTM D5185m 1150 | 1001 | 855 | 1011 |
| Zinc | ppm | ASTM D5185m 1270 | 1215 | 1144 | 1227 |
| Sulfur | ppm | ASTM D5185m 2060 | 3389 | 2833 | 2980 |

CONTAMINANTS

| method | limit/base | current | history1 | history2 | |
|-----------|------------|-----------------|--------------|----------|-------|
| Silicon | ppm | ASTM D5185m >25 | 8 | 15 | 18 |
| Sodium | ppm | ASTM D5185m | ● 117 | ▲ 570 | ▲ 456 |
| Potassium | ppm | ASTM D5185m >20 | 33 | 10 | ▲ 66 |
| Fuel | % | ASTM D3524 >3.0 | ▲ 3.5 | ▲ 3.4 | ▲ 3.8 |
| Glycol | % | *ASTM D2982 | NEG | NEG | NEG |

INFRA-RED

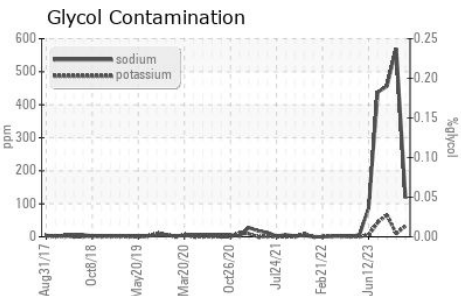
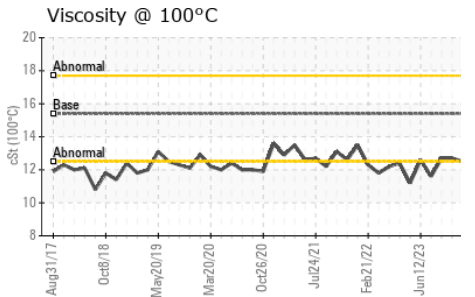
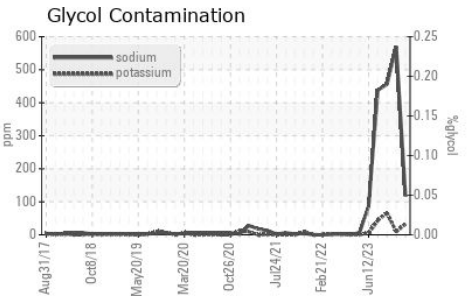
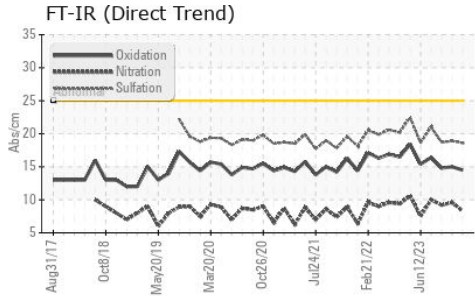
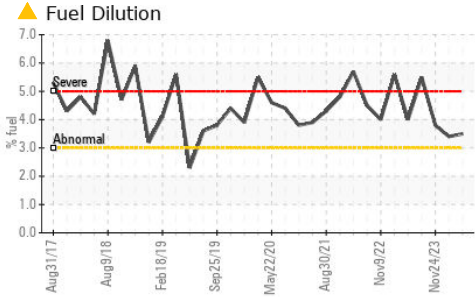
| method | limit/base | current | history1 | history2 | |
|-----------|------------|-----------------|-------------|----------|------|
| Soot % | % | *ASTM D7844 >4 | 0.5 | 0.3 | 0.2 |
| Nitration | Abs/cm | *ASTM D7624 >20 | 8.3 | 9.6 | 9.2 |
| Sulfation | Abs/.1mm | *ASTM D7415 >30 | 18.6 | 18.9 | 18.7 |

FLUID DEGRADATION

| method | limit/base | current | history1 | history2 | |
|------------------|------------|-----------------|-------------|----------|------|
| Oxidation | Abs/.1mm | *ASTM D7414 >25 | 14.5 | 15.0 | 14.8 |
| Base Number (BN) | mg KOH/g | ASTM D2896 9.8 | 7.1 | 7.8 | 8.7 |



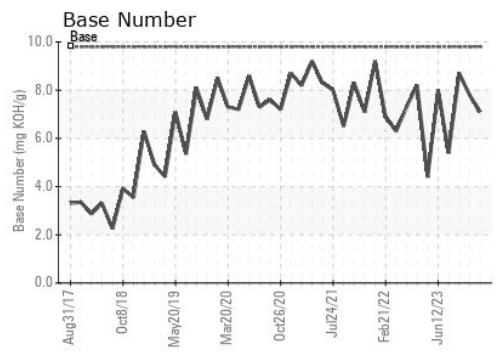
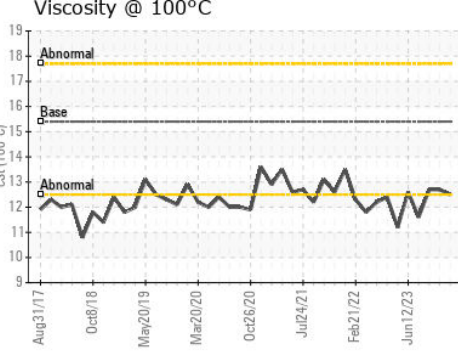
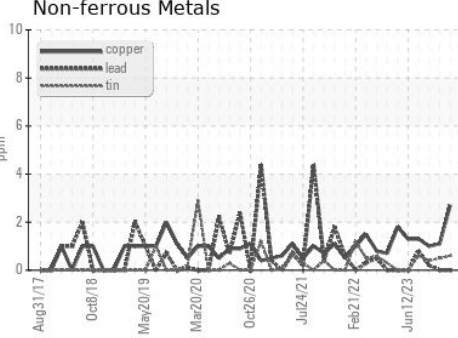
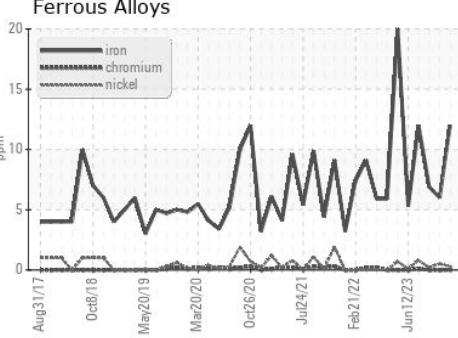
OIL ANALYSIS REPORT



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

| FLUID PROPERTIES | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|---------|----------|----------|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | 12.5 | 12.7 |

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0094898 **Received** : 21 May 2024
Lab Number : 06185827 **Tested** : 29 May 2024
Unique Number : 11042579 **Diagnosed** : 29 May 2024 - Jonathan Hester
Test Package : FLEET (Additional Tests: Glycol, PercentFuel)

GFL Environmental - 044 - Elizabeth City
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 Elizabeth City, NC
 US 27909
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 T: (252)562-2645
 F: (252)264-4411

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)