



| | |
|-----------------|-----------------|
| WEAR | NORMAL |
| CONTAMINATION | MARGINAL |
| FLUID CONDITION | ABNORMAL |



Machine Id
4555M
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | GFL0122495 | GFL0117664 | GFL0108723 |
| Sample Date | | Client Info | | 21 May 2024 | 09 Apr 2024 | 05 Jan 2024 |
| Machine Age | hrs | Client Info | | 20833 | 20700 | 20313 |
| Oil Age | hrs | Client Info | | 20247 | 20247 | 20247 |
| Filter Age | hrs | Client Info | | 20247 | 0 | 20247 |
| Oil Changed | | Client Info | | Changed | Not Changd | Not Changd |
| Filter Changed | | Client Info | | Changed | Not Changd | Not Changd |
| Sample Status | | | | ABNORMAL | SEVERE | SEVERE |

WEAR

All component wear rates are normal.

| | | | | | | |
|--------------|--------|-------------|------|--------------|------|------|
| Iron | ppm | ASTM D5185m | >90 | 72 | 61 | 30 |
| Chromium | ppm | ASTM D5185m | >20 | 3 | 2 | <1 |
| Nickel | ppm | ASTM D5185m | >2 | 1 | 0 | 0 |
| Titanium | ppm | ASTM D5185m | >2 | <1 | 0 | 0 |
| Silver | ppm | ASTM D5185m | >2 | <1 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | 6 | 6 | 2 |
| Lead | ppm | ASTM D5185m | >40 | 13 | 8 | 4 |
| Copper | ppm | ASTM D5185m | >330 | 18 | 6 | 2 |
| Tin | ppm | ASTM D5185m | >15 | 2 | 1 | 0 |
| Vanadium | ppm | ASTM D5185m | | <1 | 0 | 0 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |

CONTAMINATION

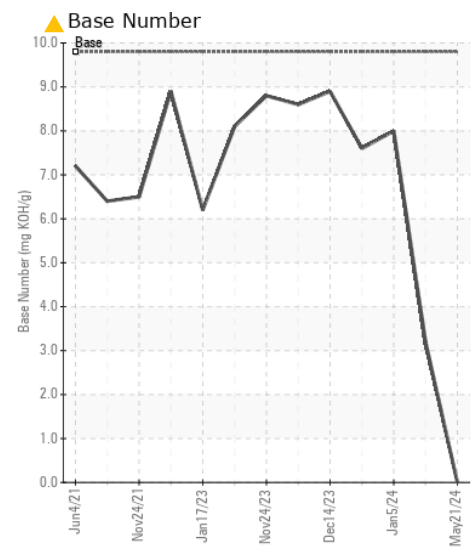
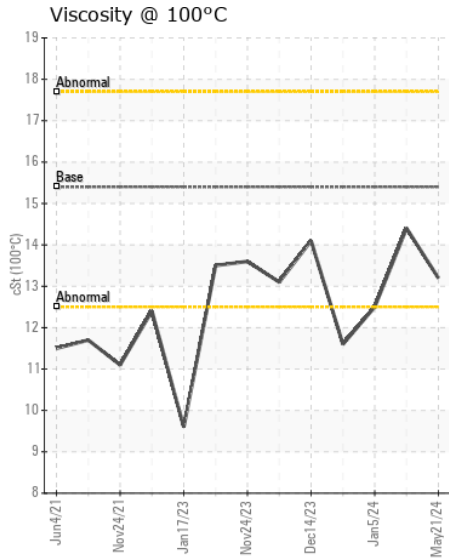
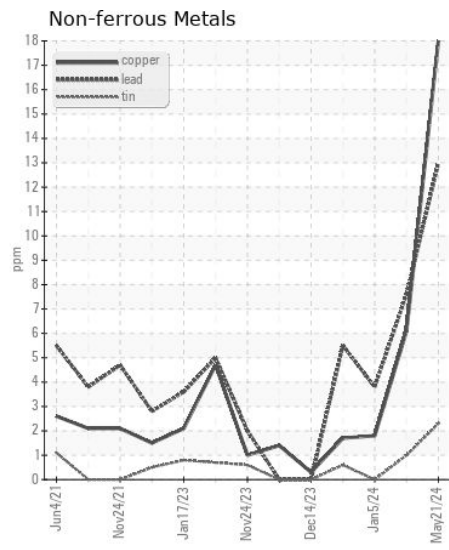
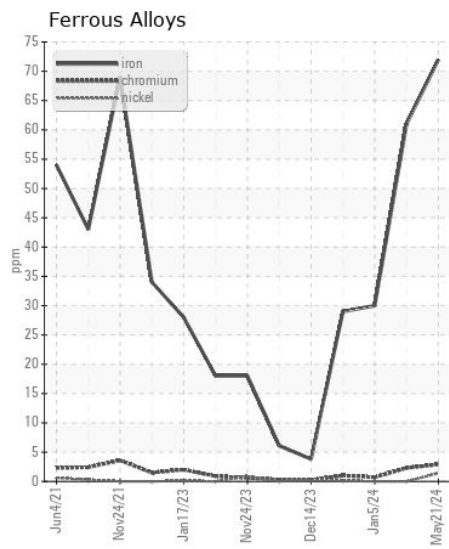
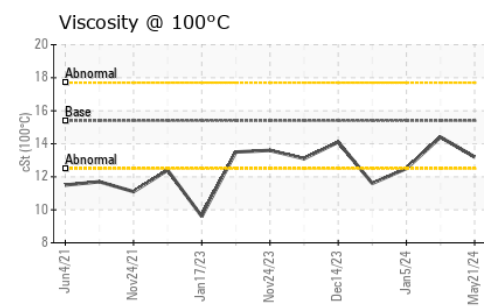
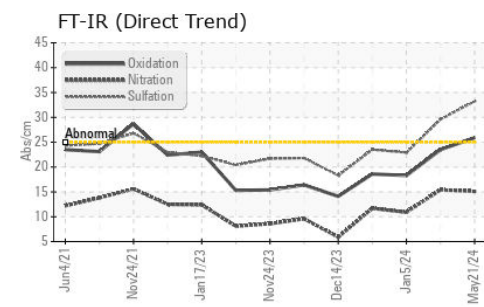
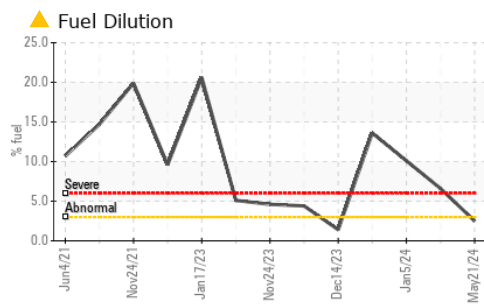
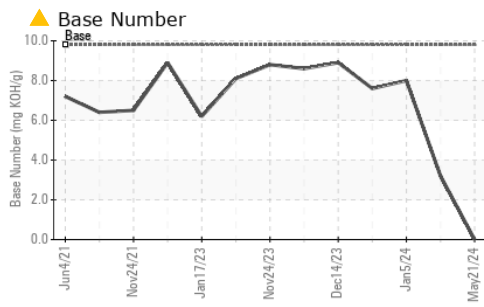
Light fuel dilution occurring.

| | | | | | | |
|------------------|----------|-------------|-------|--------------|-------|--------|
| Silicon | ppm | ASTM D5185m | >25 | 7 | 6 | 4 |
| Potassium | ppm | ASTM D5185m | >20 | 3 | 1 | 2 |
| Fuel | % | ASTM D3524 | >3.0 | ▲ 2.5 | ▲ 6.6 | ▲ 10.1 |
| Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| Soot % | % | *ASTM D7844 | >6 | 5 | 4.4 | 2.4 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 15.1 | 15.4 | 10.9 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 33.2 | 29.6 | 22.9 |
| 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 |

FLUID CONDITION

The BN level is low. The condition of the oil is acceptable for the time in service.

| | | | | | | |
|------------------|----------|-------------|------|--------------|------|------|
| Sodium | ppm | ASTM D5185m | | 5 | 4 | 4 |
| Boron | ppm | ASTM D5185m | 0 | 6 | 2 | 0 |
| Barium | ppm | ASTM D5185m | 0 | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 60 | 46 | 55 | 52 |
| Manganese | ppm | ASTM D5185m | 0 | <1 | 1 | 0 |
| Magnesium | ppm | ASTM D5185m | 1010 | 688 | 914 | 843 |
| Calcium | ppm | ASTM D5185m | 1070 | 835 | 1045 | 944 |
| Phosphorus | ppm | ASTM D5185m | 1150 | 761 | 1023 | 919 |
| Zinc | ppm | ASTM D5185m | 1270 | 1050 | 1238 | 1107 |
| Sulfur | ppm | ASTM D5185m | 2060 | 2329 | 3233 | 2761 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 25.9 | 23.5 | 18.3 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | ▲ 0.0 | 3.2 | 8.0 |
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | 13.2 | 14.4 | 12.5 |



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0122495 **Received** : 24 May 2024
Lab Number : 06190326 **Tested** : 30 May 2024
Unique Number : 11047078 **Diagnosed** : 30 May 2024 - Jonathan Hester
Test Package : FLEET (Additional Tests: PercentFuel)

GFL Environmental - 415 - Michigan East
 6200 Elmridge
 Sterling Heights, MI
 US 48313
 Contact: Frank Wolak
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 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)