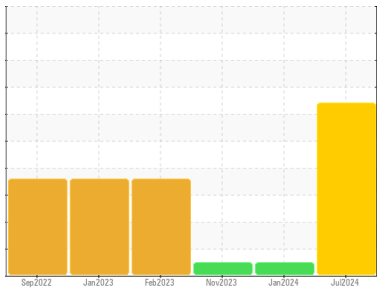
# OIL ANALYSIS REPORT

Sample Rating Trend




**DEGRADATION**

Area
**5 Utilities/031 Water Pumping/Gearbox/P Pump/751A #1 Fire Pump**
Machine Id
**31EP751A #1 Fire Pump Engine**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON UHP E6 10W40 (--- LTR)**

## DIAGNOSIS

**Recommendation**
Due to this condition we recommend the following action... We advise an early resample to confirm this situation. NOTE: The current sample results do not match this units historical trend, indicating the sample may not be from this component/unit.

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

**Contamination**
There is no indication of any contamination in the oil.

**Fluid Condition**
The low BN value indicates relatively little reserve alkalinity remaining in this oil. Viscosity of sample indicates oil is within SAE 40 range, advise investigate. This plus the additive levels indicates that this is not the same brand, or type of oil as reported.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **WC0957476** | WC0902167 | WC0813226 |
| Sample Date | | Client Info | | **02 Jul 2024** | 04 Jan 2024 | 02 Nov 2023 |
| Machine Age | hrs | Client Info | | **0** | 0 | 0 |
| Oil Age | hrs | Client Info | | **0** | 0 | 0 |
| Oil Changed | | Client Info | | **N/A** | N/A | N/A |
| Sample Status | | | | **SEVERE** | NORMAL | NORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Fuel | | WC Method | >5 | **<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 D5185(m) | >100 | **3** | 2 | 1 |
| Chromium | ppm | ASTM D5185(m) | >20 | **0** | 0 | 0 |
| Nickel | ppm | ASTM D5185(m) | >4 | **<1** | 0 | 0 |
| Titanium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185(m) | >3 | **0** | 0 | <1 |
| Aluminum | ppm | ASTM D5185(m) | >20 | **0** | <1 | <1 |
| Lead | ppm | ASTM D5185(m) | >40 | **0** | <1 | <1 |
| Copper | ppm | ASTM D5185(m) | >330 | **<1** | 1 | <1 |
| Tin | ppm | ASTM D5185(m) | >15 | **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 | **54** | 1 | 1 |
| Barium | ppm | ASTM D5185(m) | 0 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185(m) | 0 | **0** | 57 | 62 |
| Manganese | ppm | ASTM D5185(m) | 0 | **0** | 0 | 0 |
| Magnesium | ppm | ASTM D5185(m) | 80 | **<1** | 955 | 1032 |
| Calcium | ppm | ASTM D5185(m) | 2400 | **2** | 1028 | 1102 |
| Phosphorus | ppm | ASTM D5185(m) | 750 | **229** | 984 | 1087 |
| Zinc | ppm | ASTM D5185(m) | 840 | **2** | 1155 | 1265 |
| Sulfur | ppm | ASTM D5185(m) | 2130 | **4276** | 2552 | 2795 |
| Lithium | ppm | ASTM D5185(m) | | **<1** | <1 | <1 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185(m) | >25 | **<1** | 2 | 4 |
| Sodium | ppm | ASTM D5185(m) | | **1** | 1 | 2 |
| Potassium | ppm | ASTM D5185(m) | >20 | **<1** | <1 | 0 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | ASTM D7844* | >3 | **0** | 0 | 0 |
| Nitration | Abs/cm | ASTM D7624* | >20 | **2.1** | 4.3 | 4.2 |
| Sulfation | Abs/.1mm | ASTM D7415* | >30 | **13.0** | 17.6 | 17.7 |

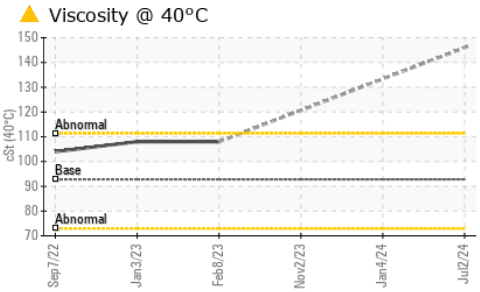
# OIL ANALYSIS REPORT

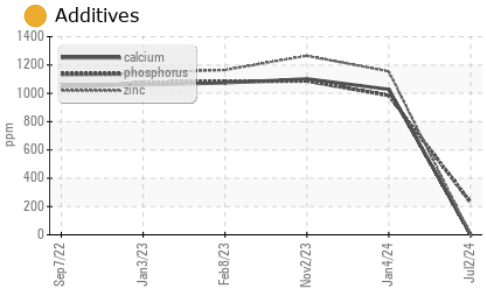
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | ASTM D7414* | >25 | **3.1** | 12.8 | 13.0 |
| Base Number (BN) | mg KOH/g | ASTM D2896* | 9.5 | ▲ **0.75** | 9.99 | 9.36 |

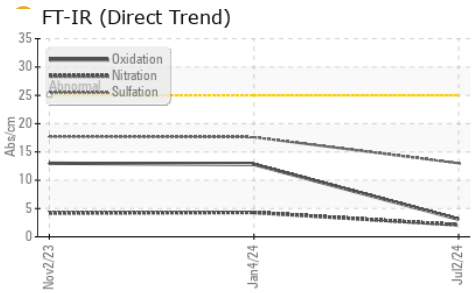
| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Emulsified Water | scalar | Visual* | >0.2 | **NEG** | NEG | NEG |
| Free Water | scalar | Visual* | | **NEG** | NEG | NEG |

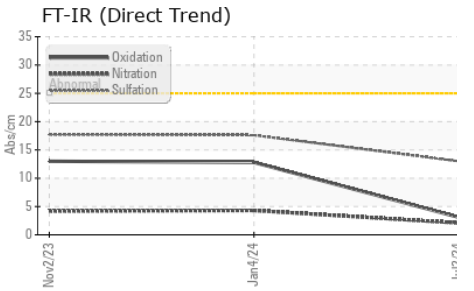
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D7279(m) | 92.8 | ▲ **146** | --- | --- |
| Visc @ 100°C | cSt | ASTM D7279(m) | 14.2 | **14.9** | 14.8 | 14.8 |
| Viscosity Index (VI) | Scale | ASTM D2270* | 157 | ▲ **101** | --- | --- |

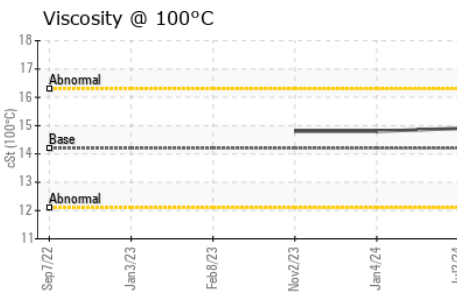
## GRAPHS

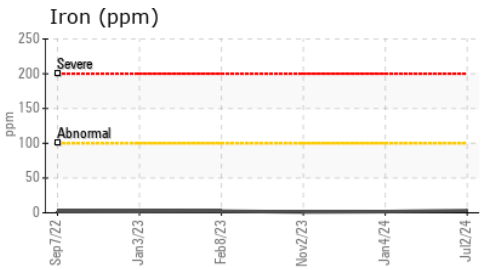


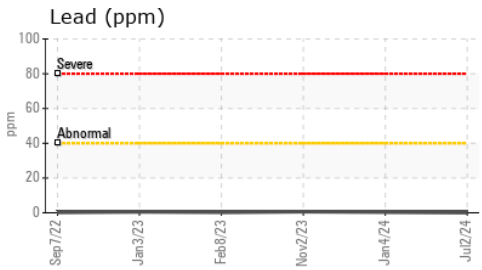



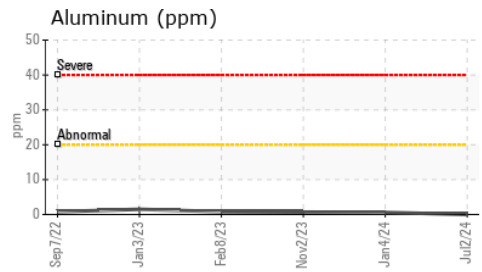



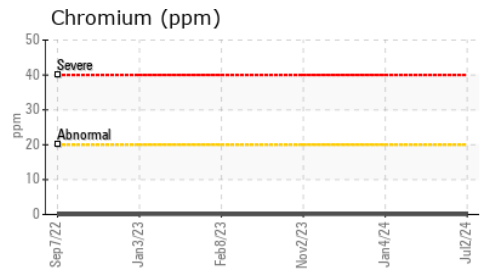



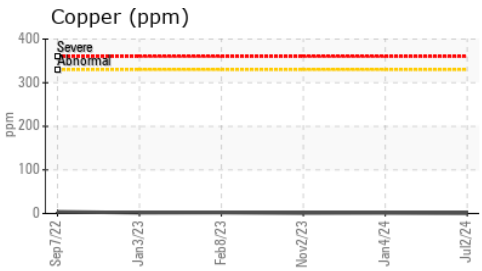



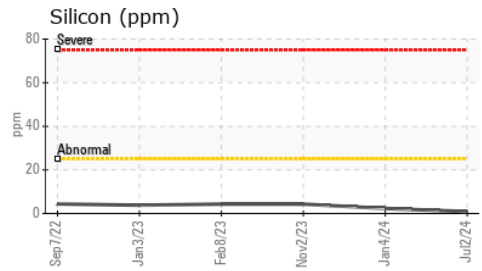



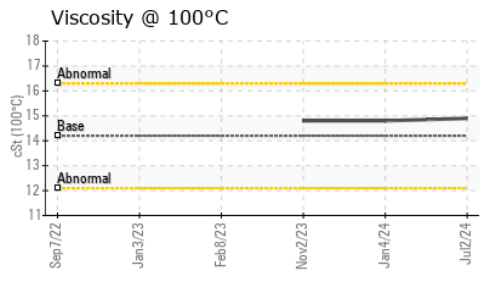



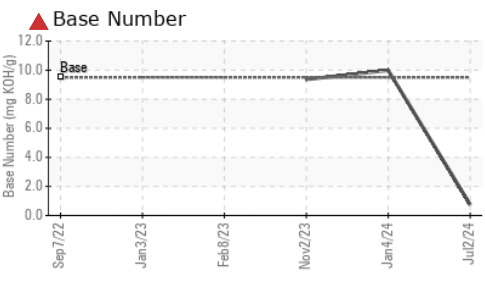




ISO 17025:2017 Accredited Laboratory

**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
**Sample No.** : WC0957476 **Received** : 09 Jul 2024
**Lab Number** : 02646670 **Tested** : 11 Jul 2024
**Unique Number** : 5812222 **Diagnosed** : 15 Jul 2024 - Kevin Marson
**Test Package** : MOB 2 ( Additional Tests: KV40, VI )

*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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