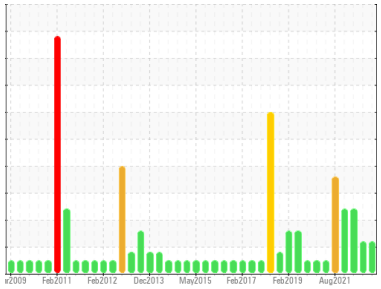
# OIL ANALYSIS REPORT

Sample Rating Trend



**FUEL**

Machine Id
## NOVA BUS EQ60048
Component
**Rear Diesel Engine**
Fluid
**VALVOLINE 15W40 (24 LTR)**

## DIAGNOSIS

**Recommendation**
The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

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

**Contamination**
There is a moderate amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

**Fluid Condition**
Viscosity of sample indicates oil is within SAE 30 range, advise investigate. The oil is no longer serviceable due to the presence of contaminants.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **WC0809134** | WC0734887 | WC0655393 |
| Sample Date | | Client Info | | **20 Sep 2023** | 19 Sep 2022 | 15 Feb 2022 |
| Machine Age | kms | Client Info | | **937916** | 875529 | 839097 |
| Oil Age | kms | Client Info | | **10000** | 10000 | 10000 |
| Oil Changed | | Client Info | | **Changed** | Changed | Changed |
| Sample Status | | | | **ABNORMAL** | ABNORMAL | SEVERE |

| CONTAMINATION | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Glycol | WC Method | | **NEG** | NEG | NEG |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185(m) | >100 | **24** | 25 | 18 |
| Chromium | ppm | ASTM D5185(m) | >20 | **1** | 1 | <1 |
| Nickel | ppm | ASTM D5185(m) | >4 | **0** | 0 | <1 |
| Titanium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185(m) | >3 | **<1** | 0 | <1 |
| Aluminum | ppm | ASTM D5185(m) | >20 | **1** | 2 | 2 |
| Lead | ppm | ASTM D5185(m) | >40 | **1** | 1 | <1 |
| Copper | ppm | ASTM D5185(m) | >330 | **1** | 2 | 7 |
| Tin | ppm | ASTM D5185(m) | >15 | **0** | <1 | <1 |
| 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) | 39 | **3** | 4 | 1 |
| Barium | ppm | ASTM D5185(m) | 1 | **<1** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185(m) | 49 | **58** | 56 | 50 |
| Manganese | ppm | ASTM D5185(m) | 1 | **0** | <1 | <1 |
| Magnesium | ppm | ASTM D5185(m) | 616 | **921** | 892 | 831 |
| Calcium | ppm | ASTM D5185(m) | 1554 | **1010** | 1021 | 862 |
| Phosphorus | ppm | ASTM D5185(m) | 899 | **922** | 966 | 913 |
| Zinc | ppm | ASTM D5185(m) | 1069 | **1134** | 1079 | 1024 |
| Sulfur | ppm | ASTM D5185(m) | 2624 | **2319** | 2359 | 2198 |
| Lithium | ppm | ASTM D5185(m) | | **<1** | <1 | <1 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185(m) | >25 | **4** | 4 | 4 |
| Sodium | ppm | ASTM D5185(m) | | **6** | 6 | 4 |
| Potassium | ppm | ASTM D5185(m) | >20 | **0** | <1 | 1 |
| Fuel | % | ASTM D7593* | >5 | ▲ **6** | ▲ 6.2 | ⬢ 14.7 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | ASTM D7844* | >3 | **0.7** | 0.2 | 0.1 |
| Nitration | Abs/cm | ASTM D7624* | >20 | **11.2** | 6.9 | 9.7 |
| Sulfation | Abs/.1mm | ASTM D7415* | >30 | **25.0** | 18.0 | 20.5 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | ASTM D7414* | >25 | **25.7** | 14.0 | 17.2 |

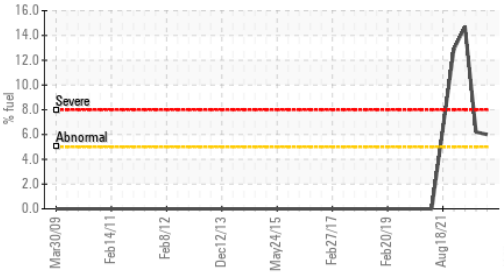
# OIL ANALYSIS REPORT

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

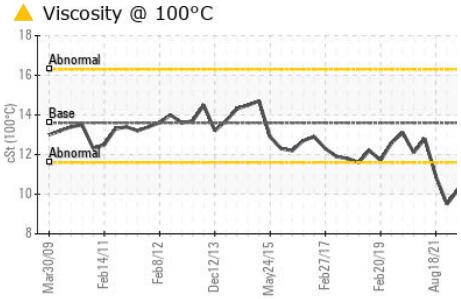
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D7279(m) | 13.6 | ▲ **12.2** | ▲ 11.5 | ▲ 10.2 |

## GRAPHS

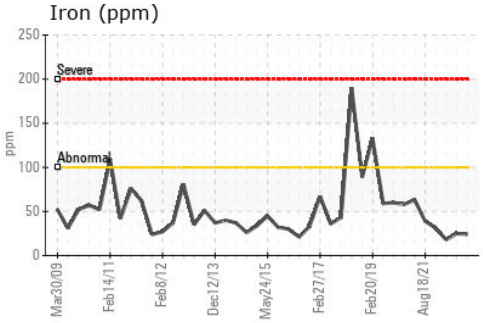
Fuel Dilution



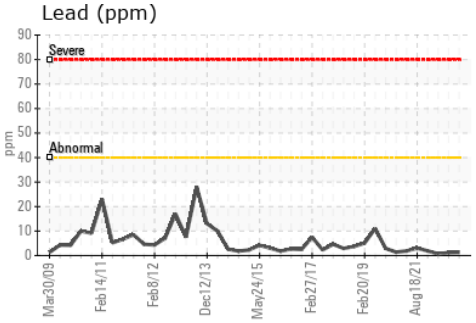

Viscosity @ 100°C



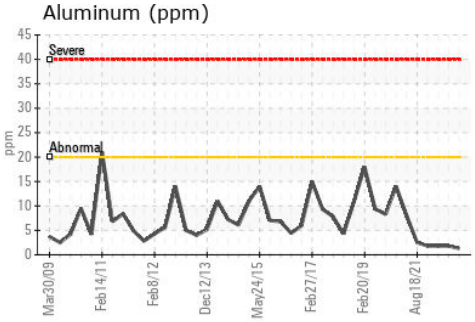

Iron (ppm)



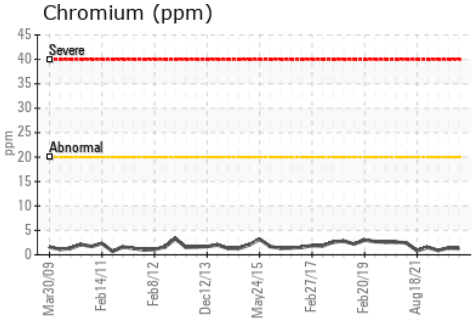

Lead (ppm)



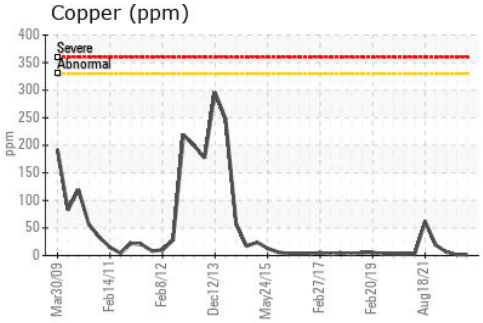

Aluminum (ppm)



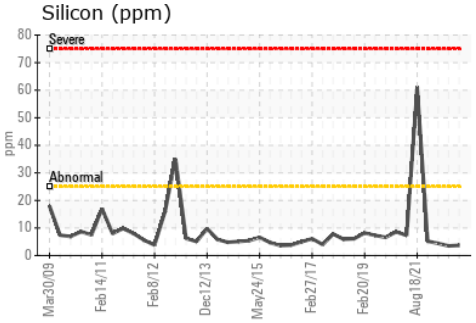

Chromium (ppm)



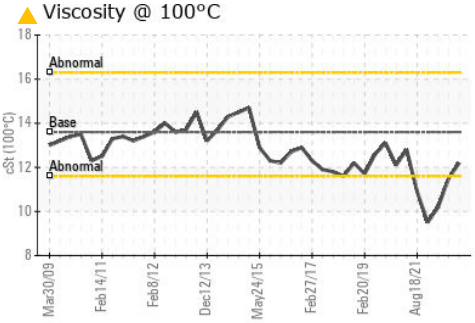

Copper (ppm)



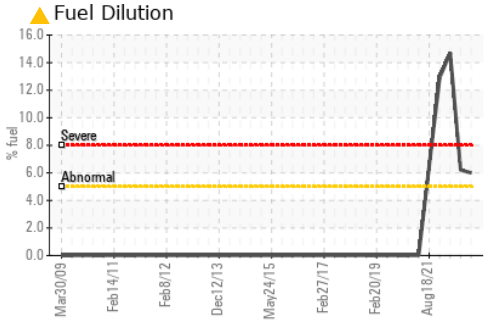

Silicon (ppm)




Viscosity @ 100°C




Fuel Dilution




ISO 17025:2017 Accredited Laboratory

| | | | |
|---|---|---|---|
| **Laboratory** | : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 | | |
| **Sample No.** | : WC0809134 | **Received** | : 03 Oct 2023 |
| **Lab Number** | : 02586251 | **Diagnosed** | : 04 Oct 2023 |
| **Unique Number** | : 5655317 | **Diagnostician** | : Kevin Marson |
| **Test Package** | : MOB 1 ( Additional Tests: PercentFuel ) | | |

*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.*


**CITY OF PETERBOROUGH**
791 WEBBER AVENUE,, MUNICIPAL OPERATIONS CENTRE
PETERBOROUGH, ON
CA K9J 8N3
Contact: Frank Curran
fcurran@peterborough.ca
T: (705)742-7777
F: (705)743-3223