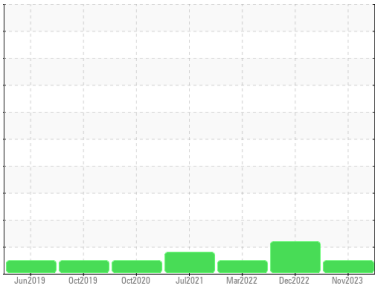
# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Machine Id
**2514**
Component
**Diesel Engine**
Fluid
**PETRO CANADA 15W40 (--- GAL)**

## DIAGNOSIS

**Recommendation**
Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

**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 | | **RW0004661** | RW0004113 | RW0003148 |
| Sample Date | | Client Info | | **17 Nov 2023** | 28 Dec 2022 | 18 Mar 2022 |
| Machine Age | hrs | Client Info | | **5476** | 4626 | 3764 |
| Oil Age | hrs | Client Info | | **0** | 613 | 600 |
| Oil Changed | | Client Info | | **Changed** | Changed | Changed |
| Sample Status | | | | **NORMAL** | ABNORMAL | 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 D5185m | >100 | **13** | 50 | 28 |
| Chromium | ppm | ASTM D5185m | >20 | **<1** | 1 | <1 |
| Nickel | ppm | ASTM D5185m | >4 | **<1** | <1 | 0 |
| Titanium | ppm | ASTM D5185m | | **0** | <1 | 2 |
| Silver | ppm | ASTM D5185m | >3 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | **4** | 5 | 4 |
| Lead | ppm | ASTM D5185m | >40 | **0** | <1 | <1 |
| Copper | ppm | ASTM D5185m | >330 | **<1** | 1 | 1 |
| Tin | ppm | ASTM D5185m | >15 | **<1** | <1 | <1 |
| Antimony | ppm | ASTM D5185m | | **---** | --- | --- |
| Vanadium | ppm | ASTM D5185m | | **0** | <1 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **35** | 98 | 239 |
| Barium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | **80** | 88 | 81 |
| Manganese | ppm | ASTM D5185m | | **<1** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | | **123** | 422 | 478 |
| Calcium | ppm | ASTM D5185m | | **2015** | 1655 | 1530 |
| Phosphorus | ppm | ASTM D5185m | | **1096** | 1112 | 1074 |
| Zinc | ppm | ASTM D5185m | | **1215** | 1419 | 1282 |
| Sulfur | ppm | ASTM D5185m | | **3549** | 3767 | 2870 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **5** | 12 | 6 |
| Sodium | ppm | ASTM D5185m | | **2** | 2 | 2 |
| Potassium | ppm | ASTM D5185m | >20 | **4** | 6 | 4 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.7** | 1.5 | 1.3 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **11.5** | 14.1 | 11.0 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **20.9** | 31.8 | 27.2 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **17.1** | 27.7 | 21.5 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | | **8.45** | ▲ 3.96 | 4.92 |

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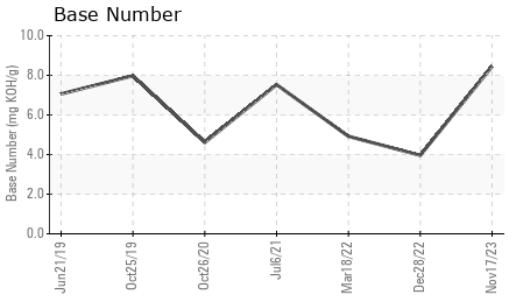
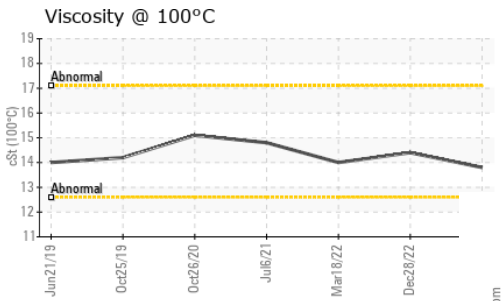
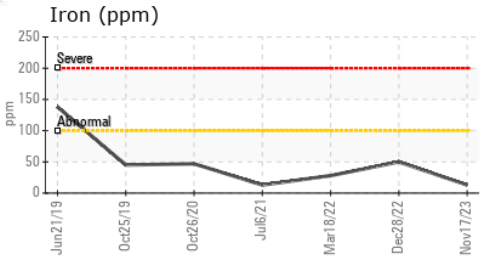


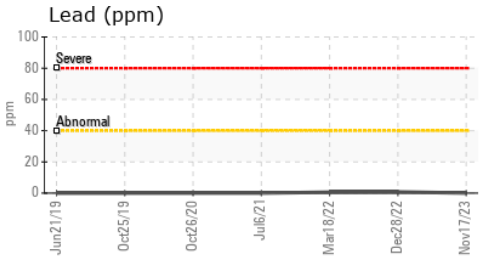



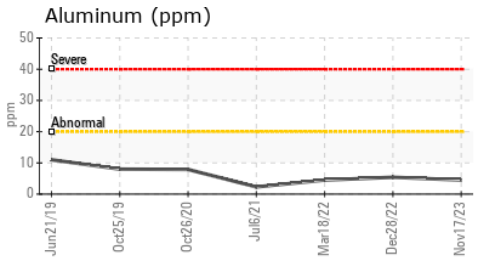

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

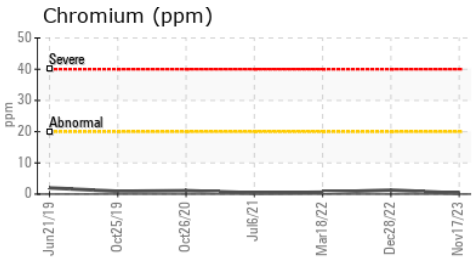
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | | **13.8** | 14.4 | 14.0 |

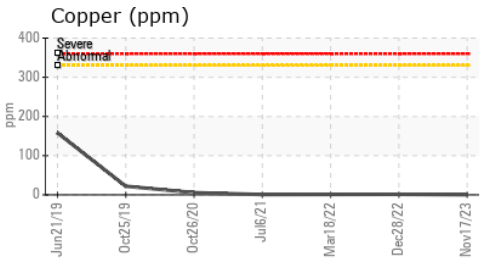
## GRAPHS

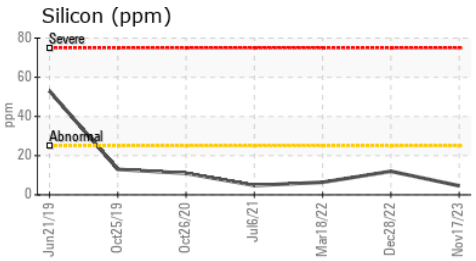


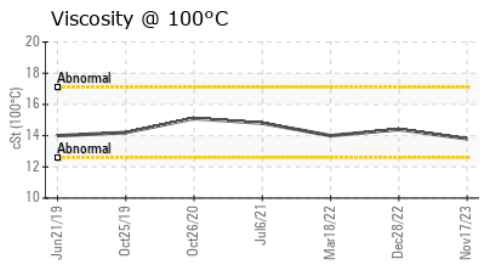



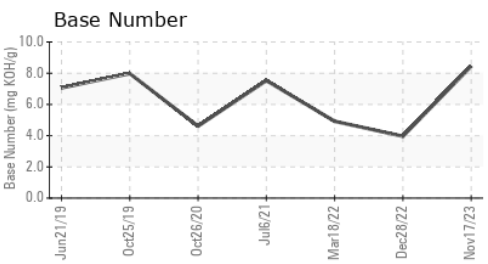




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : RW0004661
**Lab Number** : 06016659
**Unique Number** : 10755803
**Test Package** : MOB 2

**Received** : 24 Nov 2023
**Diagnosed** : 28 Nov 2023
**Diagnostician** : Wes Davis

*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)*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