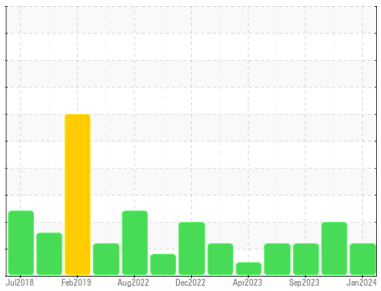
# OIL ANALYSIS REPORT

Sample Rating Trend




ISO

Area
**GP-105**
Machine Id
**B40426 - LINE 2 FORMING PUMP (S/N D13965)**
Component
**Vacuum Pump**
Fluid
**PETRO CANADA PURITY FG HYD AW 100 (5 GAL)**

## DIAGNOSIS

**Recommendation**
We recommend you service the filters on this component if applicable. Resample at the next service interval to monitor.

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

**Contamination**
There is a high amount of silt (particulates < 14 microns in size) present in the oil.

**Fluid Condition**
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **WC0880562** | WC0855974 | WC0842482 |
| Sample Date | | Client Info | | **06 Jan 2024** | 17 Nov 2023 | 13 Sep 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 | Not Changd |
| Sample Status | | | | **ABNORMAL** | ABNORMAL | ABNORMAL |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >20 | **2** | 1 | 3 |
| Chromium | ppm | ASTM D5185m | >20 | **0** | <1 | 0 |
| Nickel | ppm | ASTM D5185m | >20 | **0** | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | **<1** | <1 | 0 |
| Silver | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | **2** | 2 | 0 |
| Lead | ppm | ASTM D5185m | >20 | **0** | 0 | 0 |
| Copper | ppm | ASTM D5185m | >20 | **<1** | <1 | 0 |
| Tin | ppm | ASTM D5185m | >20 | **<1** | 0 | 0 |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Barium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | **<1** | 0 | 0 |
| Manganese | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Magnesium | ppm | ASTM D5185m | | **1** | 2 | 3 |
| Calcium | ppm | ASTM D5185m | | **3** | 8 | 3 |
| Phosphorus | ppm | ASTM D5185m | | **223** | 237 | 107 |
| Zinc | ppm | ASTM D5185m | | **0** | 0 | 5 |
| Sulfur | ppm | ASTM D5185m | | **928** | 710 | 280 |

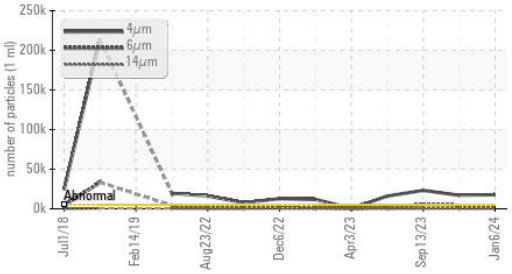
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >15 | **17** | 19 | 11 |
| Sodium | ppm | ASTM D5185m | | **0** | 0 | 2 |
| Potassium | ppm | ASTM D5185m | >20 | **2** | 3 | 2 |
| Water | % | ASTM D6304 | >.1 | **0.024** | --- | --- |
| ppm Water | ppm | ASTM D6304 | >1000 | **240** | --- | --- |

| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >5000 | ▲ **17744** | ▲ 17158 | ▲ 23276 |
| Particles >6µm | | ASTM D7647 | >1300 | ▲ **3367** | ▲ 4356 | ▲ 4854 |
| Particles >14µm | | ASTM D7647 | >160 | **103** | ▲ 185 | 121 |
| Particles >21µm | | ASTM D7647 | >40 | **13** | ▲ 46 | 18 |
| Particles >38µm | | ASTM D7647 | >10 | **2** | 4 | 1 |
| Particles >71µm | | ASTM D7647 | >3 | **0** | 1 | 0 |
| Oil Cleanliness | | ISO 4406 (c) | >19/17/14 | ▲ **21/19/14** | ▲ 21/19/15 | ▲ 22/19/14 |

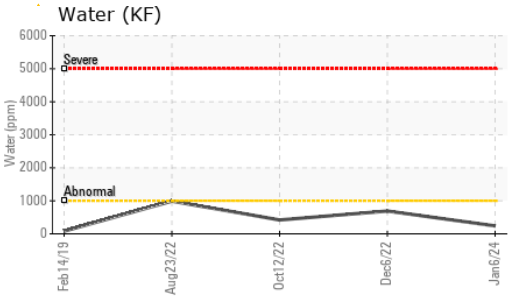
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | 0.27 | **0.056** | 0.069 | 0.089 |

# OIL ANALYSIS REPORT

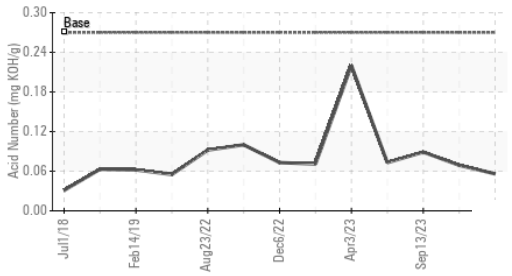
Particle Trend



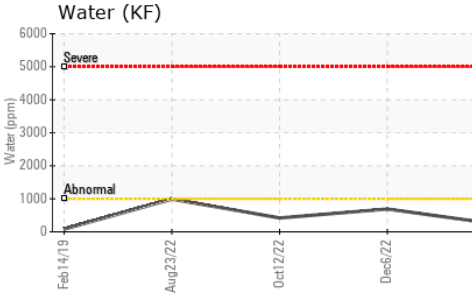

Water (KF)



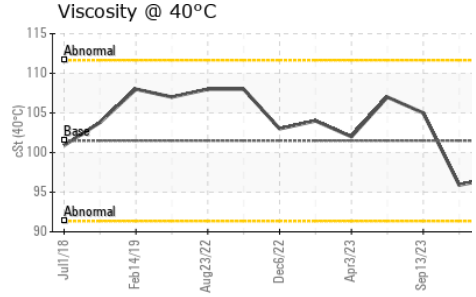

Acid Number




Water (KF)




Viscosity @ 40°C



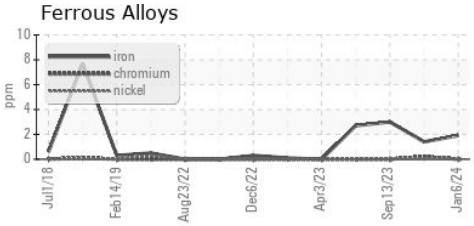

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | LIGHT | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| 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 | >.1 | **0.2%** | NEG | NEG |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D445 | 101.5 | **96.8** | 95.9 | 105 |

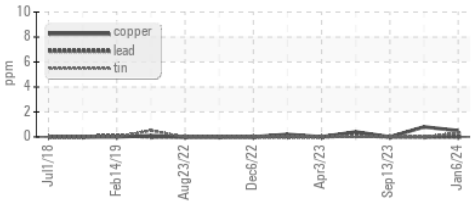
| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | | | | |
| Bottom | | | | | |

## GRAPHS

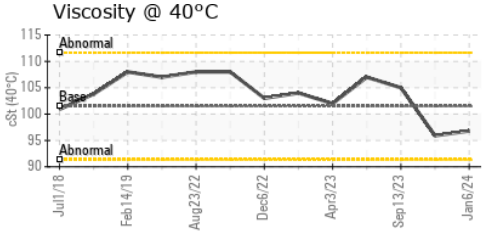
Ferrous Alloys



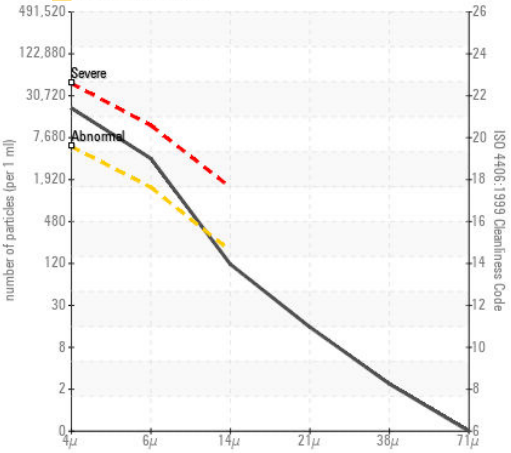

Non-ferrous Metals



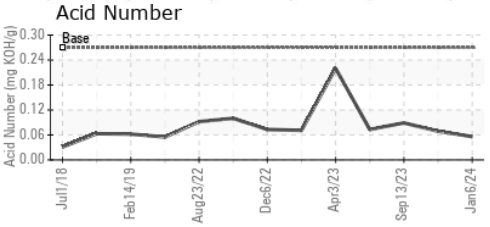

Viscosity @ 40°C




Particle Count




Acid Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : WC0880562 **Recieved** : 11 Jan 2024
**Lab Number** : 06058042 **Diagnosed** : 16 Jan 2024
**Unique Number** : 10829424 **Diagnostician** : Jonathan Hester
**Test Package** : IND 2 ( Additional Tests: KF, PrtCount )

*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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