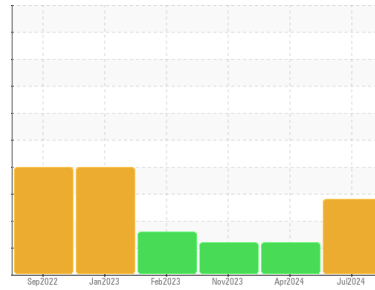




OIL ANALYSIS REPORT

Sample Rating Trend



VISCOSITY



Area
5 Utilities/031 Water Pumping/Gearbox/P Pump/751A #1 Fire Pump
 Machine Id
31GP751A#1 FIRE PUMP GEARBOX
 Component
Gearbox
 Fluid
PETRO CANADA ENDURATEX EP 150 (17 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

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. The AN level is acceptable for this fluid.

SAMPLE INFORMATION

| | method | limit/base | current | history1 | history2 |
|---------------|-------------|-------------|--------------------|-------------|-------------|
| Sample Number | Client Info | | WC0957477 | WC0902168 | WC0873661 |
| Sample Date | Client Info | | 02 Jul 2024 | 01 Apr 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 | | | ABNORMAL | ABNORMAL | ABNORMAL |

CONTAMINATION

| | method | limit/base | current | history1 | history2 |
|-------|-----------|------------|------------|----------|----------|
| Water | WC Method | >0.2 | NEG | NEG | NEG |

WEAR METALS

| | method | limit/base | current | history1 | history2 | |
|-----------|--------|---------------|---------|--------------|----------|----|
| Iron | ppm | ASTM D5185(m) | >200 | 2 | 3 | 2 |
| Chromium | ppm | ASTM D5185(m) | >15 | 0 | 0 | 0 |
| Nickel | ppm | ASTM D5185(m) | >15 | <1 | 0 | 0 |
| Titanium | ppm | ASTM D5185(m) | | 0 | 0 | 0 |
| Silver | ppm | ASTM D5185(m) | | <1 | 0 | <1 |
| Aluminum | ppm | ASTM D5185(m) | >25 | <1 | 0 | 0 |
| Lead | ppm | ASTM D5185(m) | >100 | <1 | 0 | <1 |
| Copper | ppm | ASTM D5185(m) | >200 | 1 | <1 | <1 |
| Tin | ppm | ASTM D5185(m) | >25 | 0 | 0 | 0 |
| Antimony | ppm | ASTM D5185(m) | >5 | 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) | 55 | 1 | 59 | 63 |
| Barium | ppm | ASTM D5185(m) | 0 | 0 | 0 | <1 |
| Molybdenum | ppm | ASTM D5185(m) | 0 | 47 | 0 | 0 |
| Manganese | ppm | ASTM D5185(m) | 0 | 0 | 0 | 0 |
| Magnesium | ppm | ASTM D5185(m) | 2 | 831 | <1 | <1 |
| Calcium | ppm | ASTM D5185(m) | 6 | 966 | 2 | 4 |
| Phosphorus | ppm | ASTM D5185(m) | 250 | 935 | 246 | 259 |
| Zinc | ppm | ASTM D5185(m) | 3 | 1092 | 2 | 7 |
| Sulfur | ppm | ASTM D5185(m) | 7500 | 2463 | 4723 | 5117 |
| Lithium | ppm | ASTM D5185(m) | | <1 | <1 | <1 |

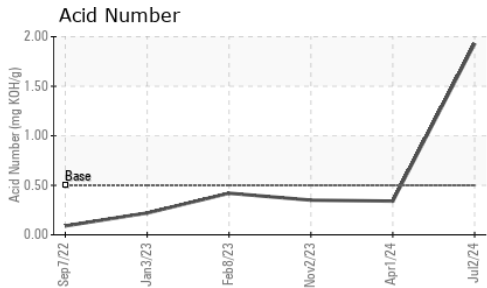
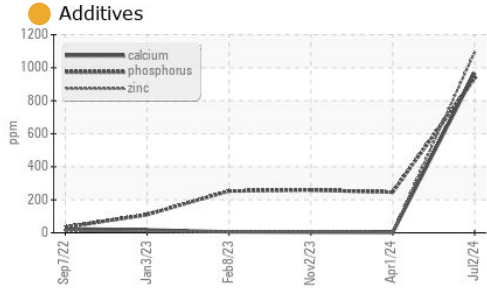
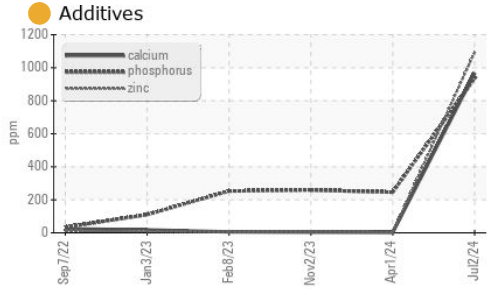
CONTAMINANTS

| | method | limit/base | current | history1 | history2 | |
|-----------|--------|---------------|---------|--------------|----------|---|
| Silicon | ppm | ASTM D5185(m) | >50 | 3 | <1 | 2 |
| Sodium | ppm | ASTM D5185(m) | | <1 | 1 | 1 |
| Potassium | ppm | ASTM D5185(m) | >20 | 0 | <1 | 0 |

FLUID CLEANLINESS

| | method | limit/base | current | history1 | history2 |
|-----------------|--------------|------------|---------|-----------------|-----------------|
| Particles >4µm | ASTM D7647 | >20000 | --- | 51519 | 61379 |
| Particles >6µm | ASTM D7647 | >5000 | --- | 6596 | 7709 |
| Particles >14µm | ASTM D7647 | >640 | --- | 93 | 69 |
| Particles >21µm | ASTM D7647 | >160 | --- | 13 | 11 |
| Particles >38µm | ASTM D7647 | >40 | --- | 1 | 3 |
| Particles >71µm | ASTM D7647 | >10 | --- | 0 | 2 |
| Oil Cleanliness | ISO 4406 (c) | >21/19/16 | --- | 23/20/14 | 23/20/13 |

OIL ANALYSIS REPORT

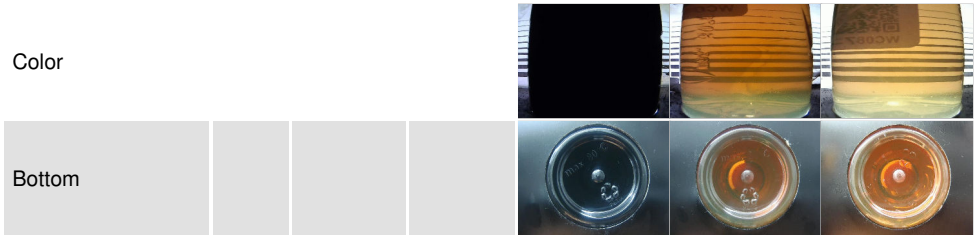


| FLUID DEGRADATION | method | limit/base | current | history1 | history2 | |
|-------------------|----------|------------|---------|-------------|----------|------|
| Acid Number (AN) | mg KOH/g | ASTM D974* | 0.5 | 1.93 | 0.34 | 0.35 |

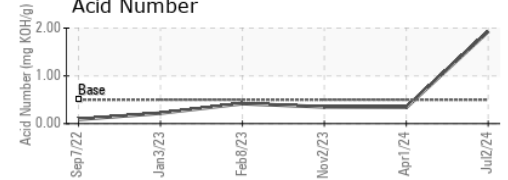
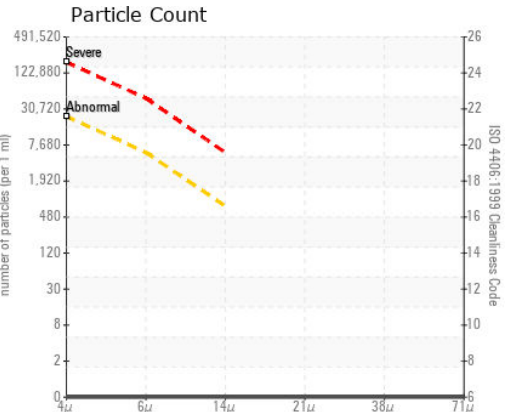
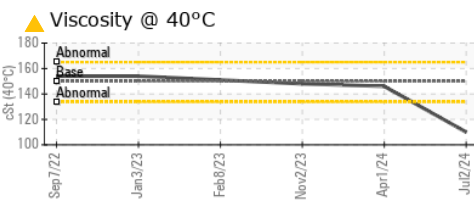
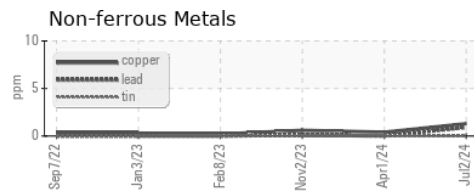
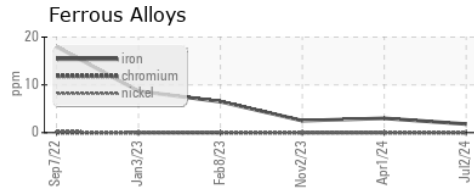
| VISUAL | method | limit/base | current | history1 | history2 | |
|------------------|--------|------------|---------|--------------|----------|-------|
| White Metal | scalar | Visual* | NONE | VLITE | NONE | NONE |
| Yellow Metal | scalar | Visual* | NONE | NONE | NONE | NONE |
| Precipitate | scalar | Visual* | NONE | NONE | NONE | NONE |
| Silt | scalar | Visual* | NONE | NONE | NONE | NONE |
| Debris | scalar | Visual* | NONE | NONE | VLITE | 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 @ 40°C | cSt | ASTM D7279(m) | 150.0 | ▲ 110 | 146 | 148 |

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



GRAPHS



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0957477 **Received** : 09 Jul 2024
Lab Number : **02646792** **Tested** : 10 Jul 2024
Unique Number : 5812344 **Diagnosed** : 15 Jul 2024 - Kevin Marson
Test Package : IND 2 (Additional Tests: PrtCountNAS, TAN Man)

Petro Canada Lubricants Inc.
 385 Southdown Road
 Mississauga, ON
 CA L5J 2Y3
 Contact: Kyle Blezard
 kyle.blezard@HFSinclair.com
 T: (905)403-6768
 F: (905)822-6025

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.