



OIL ANALYSIS REPORT

| | |
|-----------------|---------------|
| WEAR | NORMAL |
| CONTAMINATION | NORMAL |
| FLUID CONDITION | NORMAL |

Area

[02259950]

Machine Id

WESTINGHOUSE 501D

Component

Turbine

Fluid

PETRO CANADA TURBOFLO XL32 (4250 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | WC0806280 | WC0755036 | WC0751390 |
| Sample Date | | Client Info | | 27 Jul 2023 | 03 Mar 2023 | 16 Nov 2022 |
| Machine Age | yrs | Client Info | | 30 | 30 | 0 |
| Oil Age | yrs | Client Info | | 11 | 10 | 10 |
| Filter Age | yrs | Client Info | | 0 | 0 | 1 |
| Oil Changed | | Client Info | | Not Changed | Filtered | Not Changed |
| Filter Changed | | Client Info | | Changed | Changed | Not Changed |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |

WEAR

All component wear rates are normal.

| | | | | | | |
|--------------|--------|---------------|------|--------------|------|------|
| PQ | | ASTM D8184* | | 0 | 0 | --- |
| Iron | ppm | ASTM D5185(m) | >15 | 0 | 0 | 0 |
| Chromium | ppm | ASTM D5185(m) | >4 | 0 | 0 | 0 |
| Nickel | ppm | ASTM D5185(m) | >2 | <1 | 0 | 0 |
| Titanium | ppm | ASTM D5185(m) | | 0 | 0 | 0 |
| Silver | ppm | ASTM D5185(m) | | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185(m) | >10 | 0 | 0 | <1 |
| Lead | ppm | ASTM D5185(m) | | 0 | 0 | 0 |
| Copper | ppm | ASTM D5185(m) | >5 | <1 | <1 | <1 |
| Tin | ppm | ASTM D5185(m) | >5 | <1 | 0 | <1 |
| Vanadium | ppm | ASTM D5185(m) | | 0 | 0 | 0 |
| White Metal | scalar | Visual* | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | Visual* | NONE | NONE | NONE | NONE |

CONTAMINATION

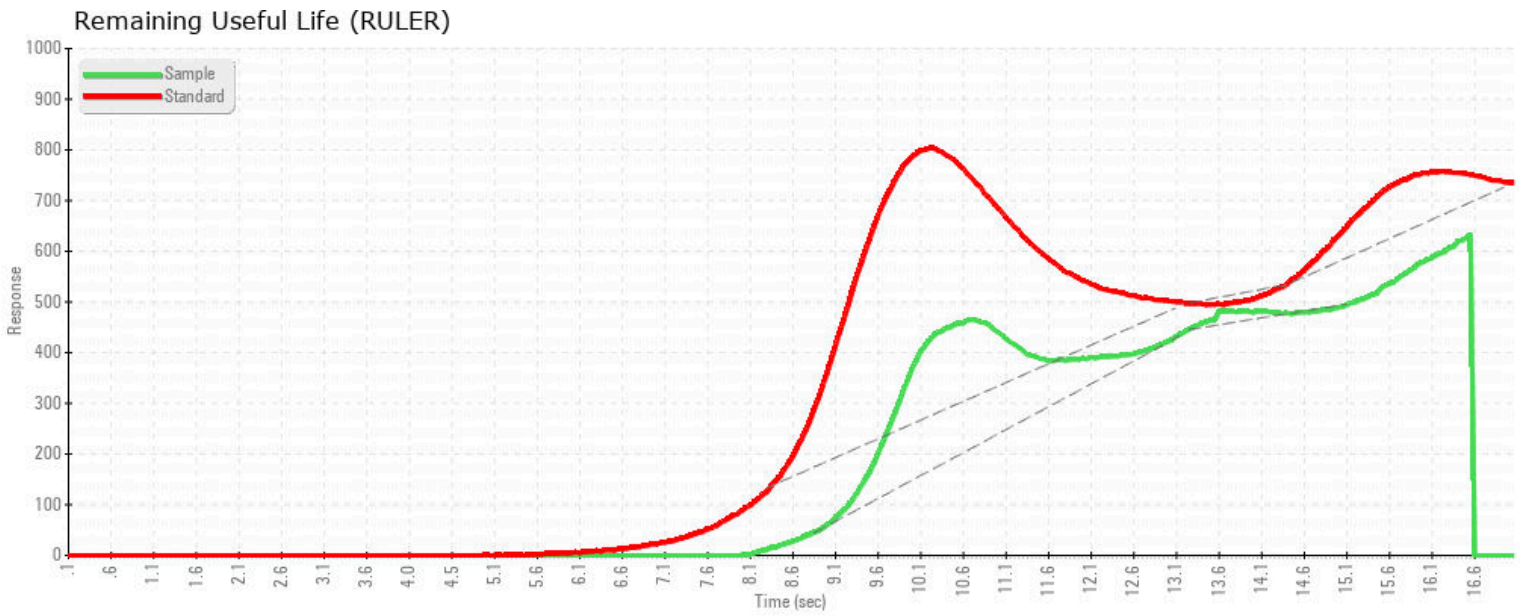
The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The water content is negligible. The system and fluid cleanliness is acceptable.

| | | | | | | |
|-----------------------|----------|----------------|-----------|-----------------|----------|----------|
| Silicon | ppm | ASTM D5185(m) | >15 | 0 | 0 | <1 |
| Potassium | ppm | ASTM D5185(m) | >20 | <1 | <1 | <1 |
| Water | % | ASTM D6304* | >0.03 | 0.001 | 0.001 | 0.001 |
| ppm Water | ppm | ASTM D6304* | >300 | 12.3 | 2.3 | 5.9 |
| Soot % | % | ASTM D7844* | | 0 | 0 | --- |
| Nitration | Abs/cm | ASTM D7624* | | 1.7 | 2.0 | --- |
| Sulfation | Abs/.1mm | ASTM D7415* | | 11.3 | 12.6 | --- |
| MPC Varnish Potential | Scale | ASTM D7843(m)* | >15 | 12 | 5 | --- |
| Particles >4µm | | ASTM D7647 | >2500 | 281 | 219 | 428 |
| Particles >6µm | | ASTM D7647 | >640 | 71 | 86 | 121 |
| Particles >14µm | | ASTM D7647 | >80 | 6 | 10 | 9 |
| Particles >21µm | | ASTM D7647 | >20 | 2 | 2 | 2 |
| Particles >38µm | | ASTM D7647 | >4 | 0 | 0 | 0 |
| Particles >71µm | | ASTM D7647 | >3 | 0 | 0 | 0 |
| Oil Cleanliness | | ISO 4406 (c) | >18/16/13 | 15/13/10 | 15/14/10 | 16/14/10 |
| 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* | >0.03 | NEG | NEG | NEG |

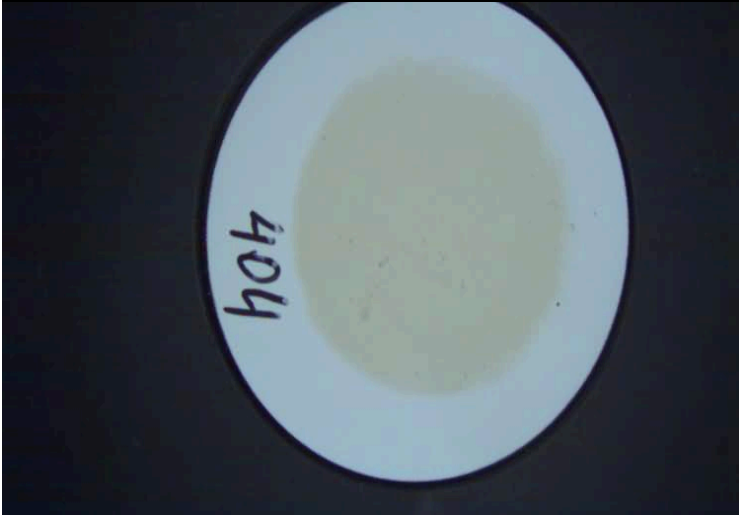
FLUID CONDITION

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

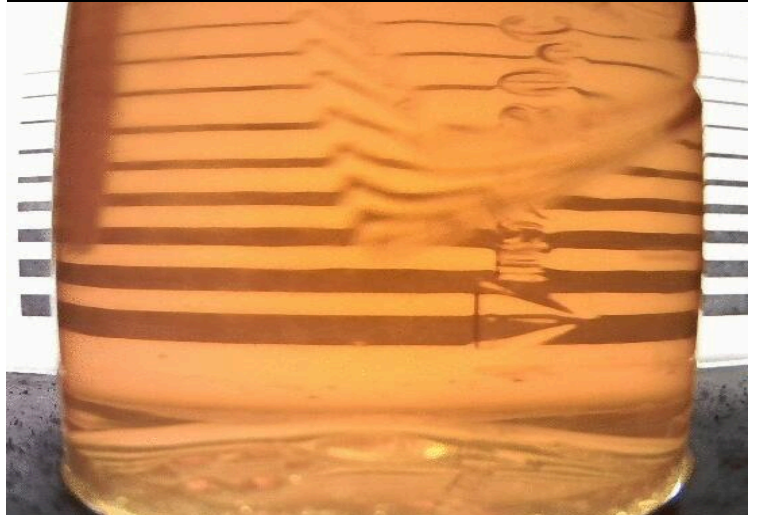
| | | | | | | |
|----------------------|----------|---------------|-------|--------------|------|------|
| Sodium | ppm | ASTM D5185(m) | | <1 | 0 | 0 |
| Boron | ppm | ASTM D5185(m) | 0 | <1 | <1 | <1 |
| Barium | ppm | ASTM D5185(m) | 0 | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185(m) | 0 | 0 | 0 | 0 |
| Manganese | ppm | ASTM D5185(m) | 0 | 0 | 0 | 0 |
| Magnesium | ppm | ASTM D5185(m) | 0 | <1 | 0 | 0 |
| Calcium | ppm | ASTM D5185(m) | 0 | <1 | 0 | 0 |
| Phosphorus | ppm | ASTM D5185(m) | 5 | 99 | 90 | 89 |
| Zinc | ppm | ASTM D5185(m) | 0 | 1 | <1 | <1 |
| Sulfur | ppm | ASTM D5185(m) | 750 | 180 | 172 | 199 |
| Oxidation | Abs/.1mm | ASTM D7414* | | 2.2 | 2.6 | --- |
| Acid Number (AN) | mg KOH/g | ASTM D974* | 0.04 | 0.03 | 0.05 | 0.04 |
| Visc @ 40°C | cSt | ASTM D7279(m) | 33.86 | 33.7 | 33.8 | 33.9 |
| Visc @ 100°C | cSt | ASTM D7279(m) | 5.60 | 5.6 | 5.6 | --- |
| Viscosity Index (VI) | Scale | ASTM D2270* | 101 | 103 | 102 | --- |
| Anti-Oxidant 1 | % | ASTM D6971* | <25 | 38 | 44 | --- |
| Anti-Oxidant 2 | % | ASTM D6971* | <25 | 28 | 30 | --- |



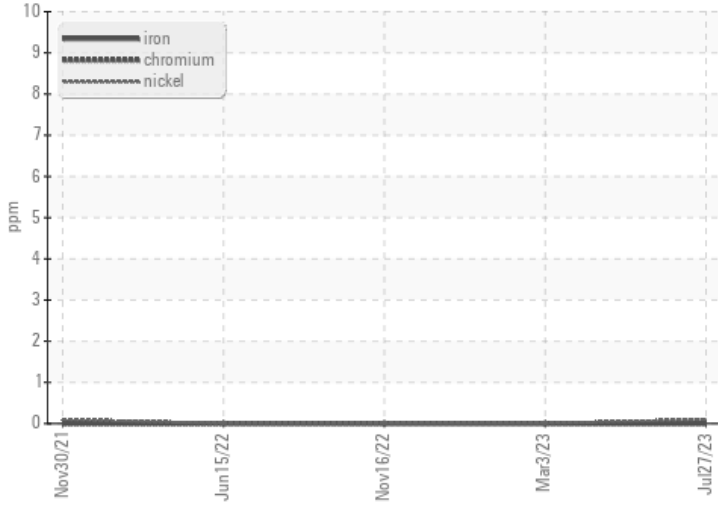
MPC (Varnish Test)



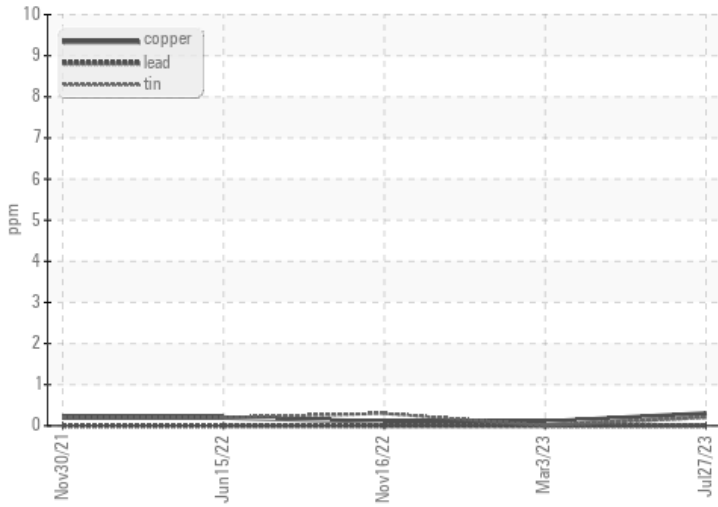
Sample Color & Clarity



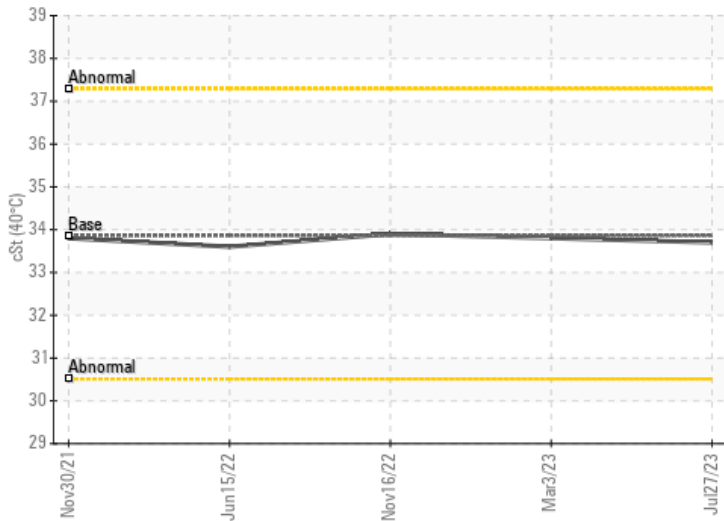
Ferrous Alloys



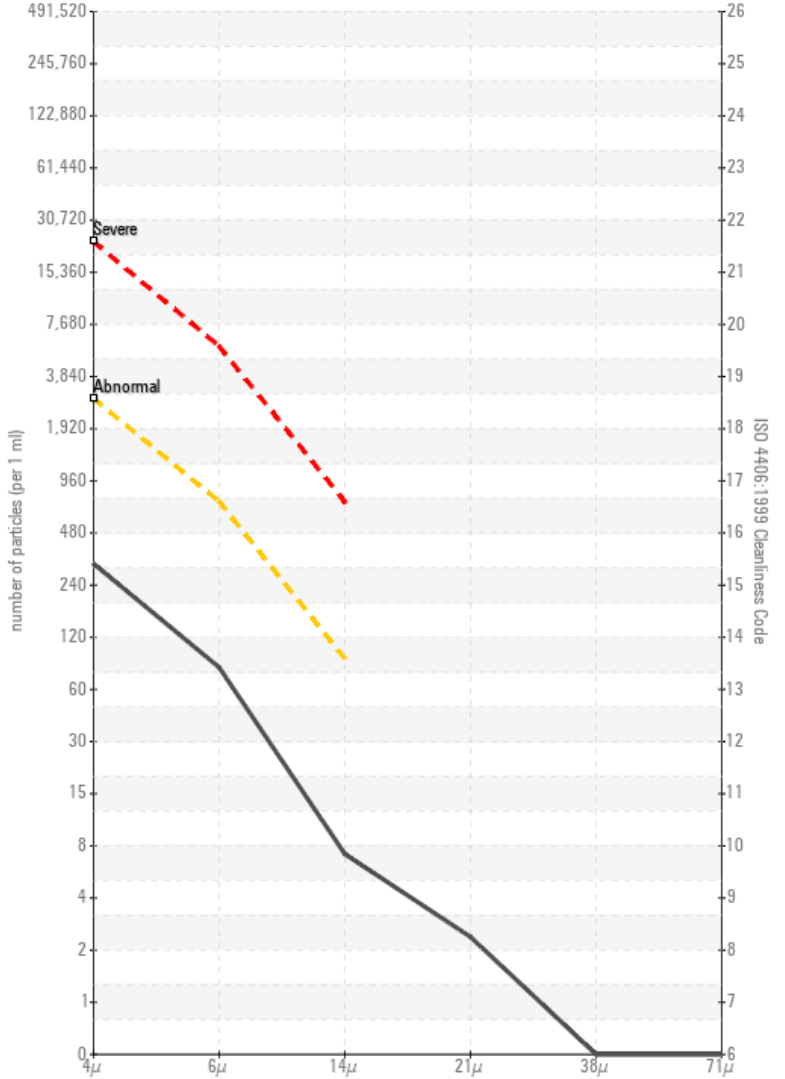
Non-ferrous Metals



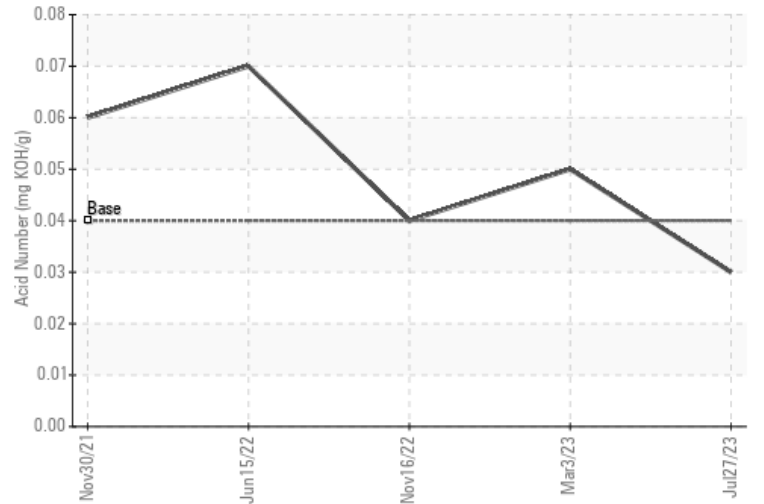
Viscosity @ 40°C



Particle Count



Acid Number



ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0806280
Lab Number : 02573404
Unique Number : 5618455
Test Package : AOM 1 (Additional Tests: TAN Auto)

Received : 01 Aug 2023
Tested : 04 Aug 2023
Diagnosed : 04 Aug 2023 - Bill Quesnel

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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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