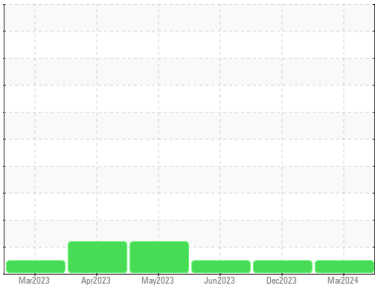
# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Area
## USACE - Old Hickory Power Plant
Machine Id
## Governor #4 Main Reservoir
Component
**Governor System**
Fluid
**PETRO CANADA TURBOFLO 68 (1500 GAL)**

## DIAGNOSIS

**Recommendation**
Resample at the next service interval to monitor.

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

**Contamination**
Insufficient sample was received to conduct all the routine laboratory tests. There is no indication of any contamination in the oil.

**Fluid Condition**
The condition of the oil is acceptable for the time in service.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **KFS0005995** | KFS0004182 | KFS0003405 |
| Sample Date | | Client Info | | **12 Mar 2024** | 05 Dec 2023 | 09 Jun 2023 |
| Machine Age | hrs | Client Info | | **0** | 0 | 0 |
| Oil Age | hrs | Client Info | | **0** | 0 | 0 |
| Oil Changed | | Client Info | | **Filtered** | Filtered | Filtered |
| Sample Status | | | | **NORMAL** | NORMAL | NORMAL |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >50 | **0** | 0 | <1 |
| Chromium | ppm | ASTM D5185m | >10 | **0** | 0 | 0 |
| Nickel | ppm | ASTM D5185m | >10 | **0** | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | **0** | <1 | 0 |
| Silver | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >3 | **0** | 0 | 0 |
| Lead | ppm | ASTM D5185m | >75 | **0** | 0 | 2 |
| Copper | ppm | ASTM D5185m | >15 | **<1** | <1 | <1 |
| Tin | ppm | ASTM D5185m | >55 | **0** | 0 | 0 |
| Antimony | ppm | ASTM D5185m | >5 | **0** | --- | --- |
| Vanadium | ppm | ASTM D5185m | | **0** | <1 | 0 |
| Beryllium | ppm | ASTM D5185m | | **0** | --- | --- |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Barium | ppm | ASTM D5185m | 0 | **<1** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Manganese | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Magnesium | ppm | ASTM D5185m | 0 | **<1** | <1 | 2 |
| Calcium | ppm | ASTM D5185m | 0 | **1** | <1 | 0 |
| Phosphorus | ppm | ASTM D5185m | 120 | **11** | 9 | 22 |
| Zinc | ppm | ASTM D5185m | 0.0 | **5** | 4 | 0 |
| Sulfur | ppm | ASTM D5185m | 50 | **168** | 166 | 472 |
| Lithium | ppm | ASTM D5185m | | **<1** | --- | --- |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >8 | **4** | <1 | <1 |
| Sodium | ppm | ASTM D5185m | | **1** | <1 | <1 |
| Potassium | ppm | ASTM D5185m | >20 | **9** | 0 | 1 |
| Water | % | ASTM D6304 | >0.1 | **NEG** | NEG | NEG |

| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >1300 | **---** | 141 | 571 |
| Particles >6µm | | ASTM D7647 | >320 | **---** | 74 | 224 |
| Particles >14µm | | ASTM D7647 | >40 | **---** | 14 | 26 |
| Particles >21µm | | ASTM D7647 | >10 | **---** | 4 | 7 |
| Particles >38µm | | ASTM D7647 | >3 | **---** | 1 | 1 |
| Particles >71µm | | ASTM D7647 | >3 | **---** | 0 | 0 |
| Oil Cleanliness | | ISO 4406 (c) | >17/15/12 | **---** | 14/13/11 | 16/15/12 |

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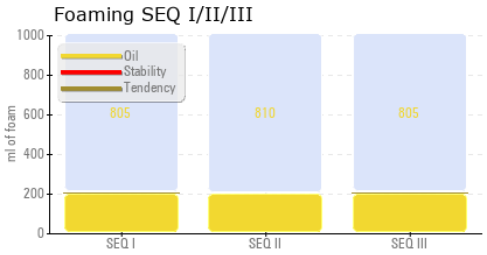
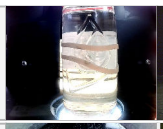
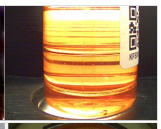
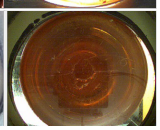
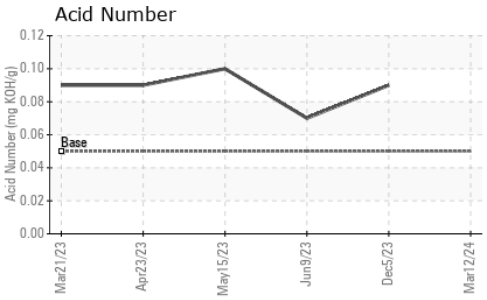


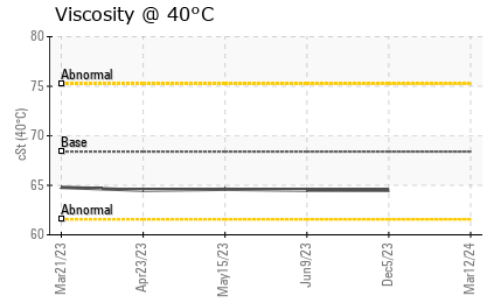

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | 0.05 | --- | 0.09 | 0.07 |

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | --- | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | --- | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | --- | NONE | NONE |
| Silt | scalar | *Visual | NONE | --- | NONE | NONE |
| Debris | scalar | *Visual | NONE | --- | NONE | NONE |
| Sand/Dirt | scalar | *Visual | NONE | --- | NONE | NONE |
| Appearance | scalar | *Visual | NORML | --- | NORML | NORML |
| Odor | scalar | *Visual | NORML | --- | NORML | NORML |
| Emulsified Water | scalar | *Visual | >0.1 | --- | NEG | NEG |
| Free Water | scalar | *Visual | | --- | NEG | NEG |

| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D445 | 68.4 | --- | 64.48 | 64.5 |
| Separability | oil/h2o/em | *ASTM D1401 | // | **41/39/0 (30)** | --- | --- |
| Air Release Time | min | *ASTM D3427 | | **10.4** | --- | --- |
| Foam Tendency | I/II/III | *ASTM D892 | 0 | **5/0/5** | --- | --- |
| Foam Stability | I/II/III | *ASTM D892 | 0 | **0/0/0** | --- | --- |

| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | | *no image* |  |  |
| Bottom | | | *no image* |  |  |




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : KFS0005995 **Received** : 21 Mar 2024
**Lab Number** : 06124492 **Tested** : 21 Mar 2024
**Unique Number** : 10938643 **Diagnosed** : 21 Mar 2024 - Doug Bogart
**Test Package** : PLANT ( Additional Tests: AirRelease, Foaming, H2OSeparability, 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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