



OIL ANALYSIS REPORT

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

Area
SAMUELRIS
Machine Id
S30-2242 Starboard Reduction Gear
Component
Starboard Reduction Gear
Fluid
PETRO CANADA ENDURATEX EP 100 (560 LTR)

RECOMMENDATION

Resample at the next service interval to monitor.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | WC0869817 | WC0759193 | WC0759166 |
| Sample Date | | Client Info | | 14 Mar 2024 | 10 Nov 2023 | 19 Jun 2023 |
| Machine Age | hrs | Client Info | | 78705 | 78199 | 77680 |
| Oil Age | hrs | Client Info | | 4780 | 4274 | 3755 |
| Filter Age | hrs | Client Info | | 1555 | 1049 | 530 |
| Oil Changed | | Client Info | | Not Changd | Not Changd | Not Changd |
| Filter Changed | | Client Info | | Not Changd | Not Changd | Not Changd |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |

WEAR

All component wear rates are normal.

| | | | | | | |
|--------------|--------|---------------|------|-------------|------|------|
| Iron | ppm | ASTM D5185(m) | >150 | 2 | 2 | 2 |
| Chromium | ppm | ASTM D5185(m) | >10 | 0 | 0 | 0 |
| Nickel | ppm | ASTM D5185(m) | >10 | 0 | 0 | 0 |
| Titanium | ppm | ASTM D5185(m) | | 0 | 0 | 0 |
| Silver | ppm | ASTM D5185(m) | | 0 | <1 | 0 |
| Aluminum | ppm | ASTM D5185(m) | >25 | 0 | 0 | 0 |
| Lead | ppm | ASTM D5185(m) | >100 | 1 | 2 | 2 |
| Copper | ppm | ASTM D5185(m) | >50 | 1 | 1 | 1 |
| Tin | ppm | ASTM D5185(m) | >10 | 0 | 0 | 0 |
| 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

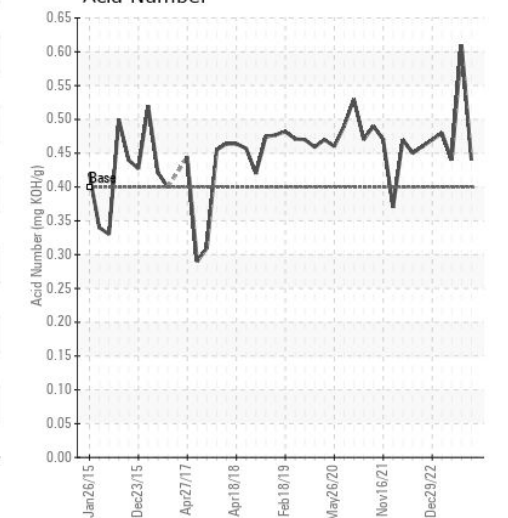
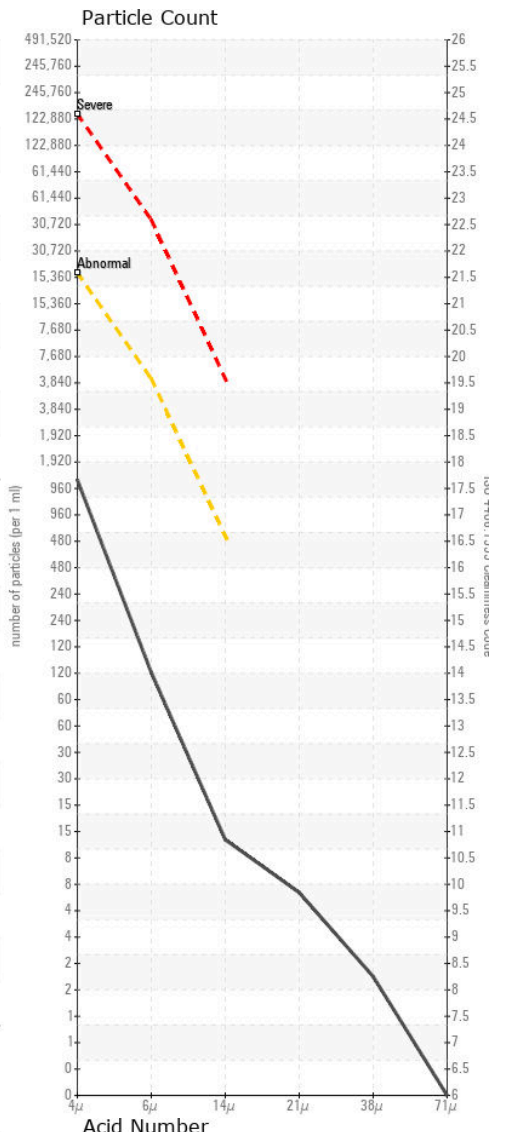
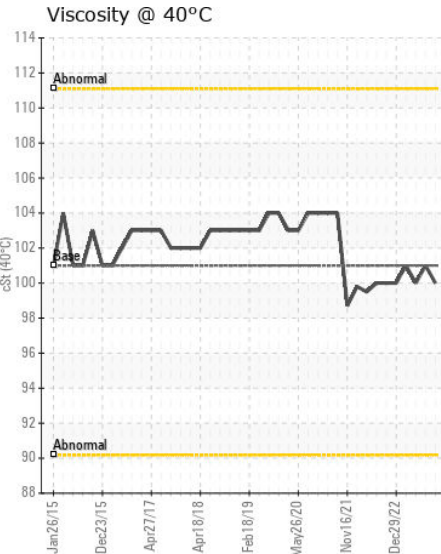
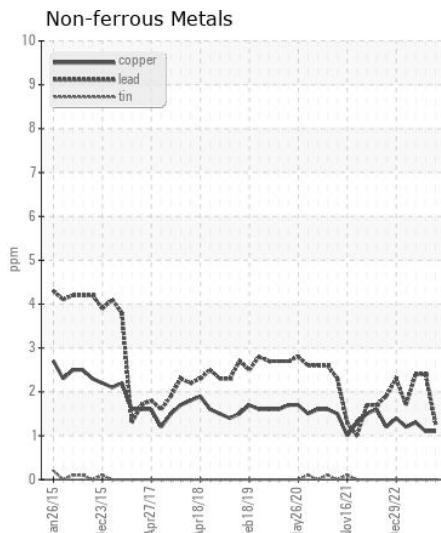
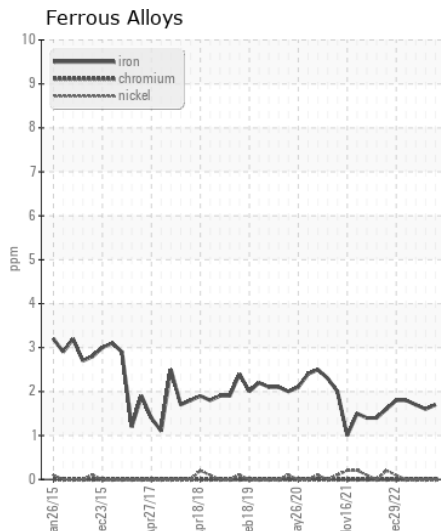
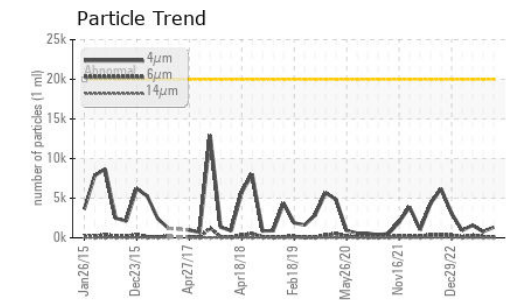
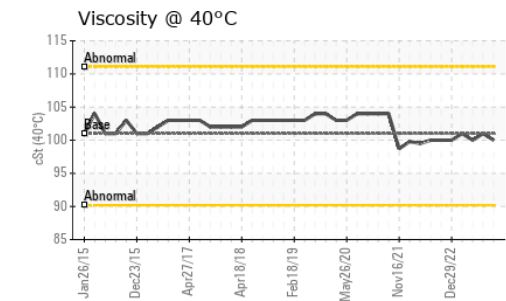
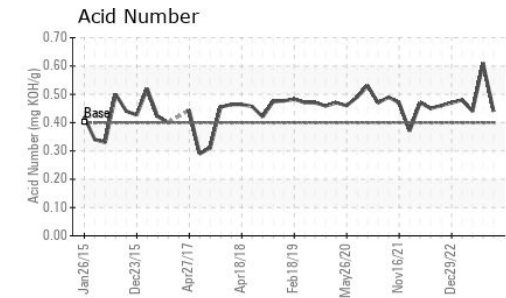
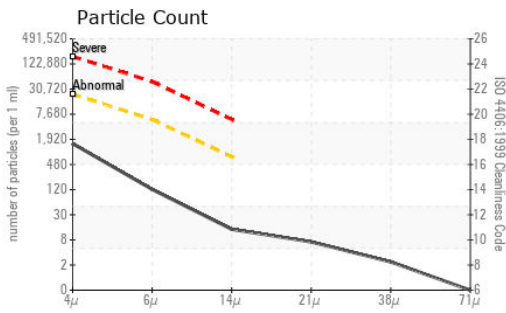
The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable.

| | | | | | | |
|------------------|--------|---------------|-----------|-----------------|----------|----------|
| Silicon | ppm | ASTM D5185(m) | >50 | 0 | <1 | <1 |
| Potassium | ppm | ASTM D5185(m) | >20 | <1 | 0 | 0 |
| Water | | WC Method | >0.1 | NEG | NEG | NEG |
| Particles >4µm | | ASTM D7647 | >20000 | 1332 | 779 | 1577 |
| Particles >6µm | | ASTM D7647 | >5000 | 107 | 153 | 284 |
| Particles >14µm | | ASTM D7647 | >640 | 12 | 16 | 22 |
| Particles >21µm | | ASTM D7647 | >160 | 6 | 6 | 6 |
| Particles >38µm | | ASTM D7647 | >40 | 2 | 1 | 1 |
| Particles >71µm | | ASTM D7647 | >10 | 0 | 0 | 1 |
| Oil Cleanliness | | ISO 4406 (c) | >21/19/16 | 18/14/11 | 17/14/11 | 18/15/12 |
| 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* | >0.1 | 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 | <1 | <1 |
| Boron | ppm | ASTM D5185(m) | 50 | 57 | 57 | 53 |
| Barium | ppm | ASTM D5185(m) | 0 | 0 | <1 | 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 | 0 | 0 | <1 |
| Calcium | ppm | ASTM D5185(m) | 0 | 2 | 3 | 2 |
| Phosphorus | ppm | ASTM D5185(m) | 270 | 243 | 244 | 252 |
| Zinc | ppm | ASTM D5185(m) | 0 | 2 | 2 | 3 |
| Sulfur | ppm | ASTM D5185(m) | 4500 | 3400 | 3600 | 3438 |
| Acid Number (AN) | mg KOH/g | ASTM D974* | 0.4 | 0.44 | 0.61 | 0.44 |
| Visc @ 40°C | cSt | ASTM D7279(m) | 101 | 100 | 101 | 100 |



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0869817 **Received** : 11 Apr 2024
Lab Number : 02628287 **Tested** : 12 Apr 2024
Unique Number : 5761419 **Diagnosed** : 12 Apr 2024 - Wes Davis
Test Package : MAR 2 (Additional Tests: TAN Man)

CANADIAN COAST GUARD
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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.