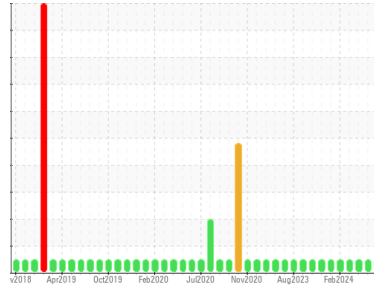


OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Area

Aft Machinery Space [450339560]

Machine Id

Thruster Aft Starboard - Steering System (S/N Sample Tag CL-06003-S2)

Component

Hydraulic System

Fluid

PETRO CANADA HYDREX MV 36 (200 LTR)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

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

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 | PC0080144 | PC | PC |
| Sample Date | Client Info | 21 May 2024 | 30 Apr 2024 | 21 Apr 2024 |
| Machine Age | hrs | 0 | 0 | 0 |
| Oil Age | hrs | 0 | 0 | 0 |
| Oil Changed | Client Info | N/A | N/A | N/A |
| Sample Status | | NORMAL | NORMAL | NORMAL |

CONTAMINATION

| method | limit/base | current | history1 | history2 |
|--------|-----------------|------------|----------|----------|
| Water | WC Method >0.05 | NEG | NEG | NEG |

WEAR METALS

| method | limit/base | current | history1 | history2 |
|-----------|-----------------------|----------|----------|----------|
| PQ | ASTM D8184* | 0 | 0 | 0 |
| Iron | ppm ASTM D5185(m) >20 | 4 | 4 | 4 |
| Chromium | ppm ASTM D5185(m) >10 | 0 | 0 | 0 |
| Nickel | ppm ASTM D5185(m) >10 | 0 | <1 | 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 | 0 |
| Lead | ppm ASTM D5185(m) >20 | 0 | 0 | 0 |
| Copper | ppm ASTM D5185(m) >20 | 7 | 7 | 7 |
| Tin | ppm ASTM D5185(m) >10 | 0 | 0 | 0 |
| Antimony | ppm ASTM D5185(m) | 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 |

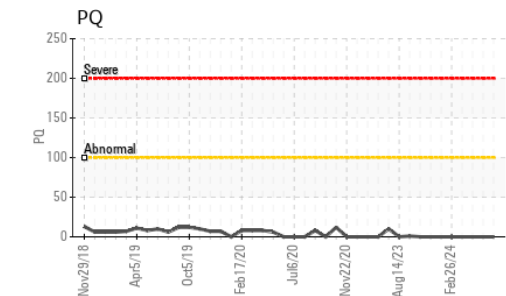
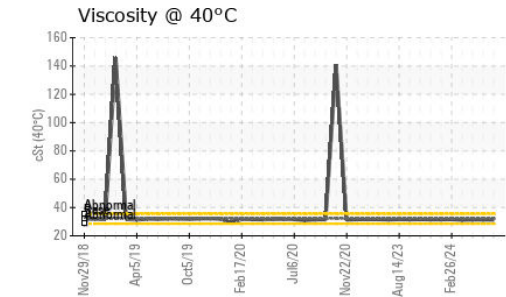
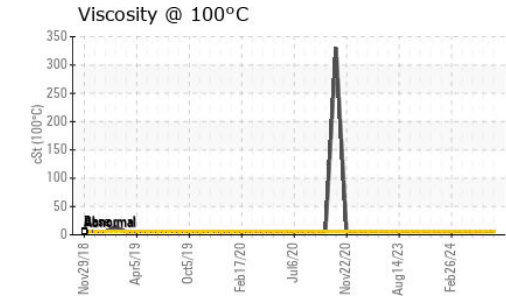
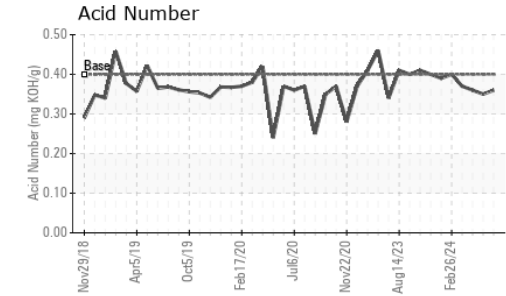
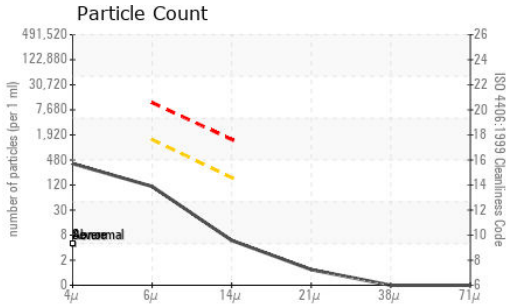
ADDITIVES

| method | limit/base | current | history1 | history2 |
|------------|-----------------------|--------------|----------|----------|
| Boron | ppm ASTM D5185(m) 0 | <1 | <1 | 0 |
| Barium | ppm ASTM D5185(m) 0 | 0 | 0 | 0 |
| Molybdenum | ppm ASTM D5185(m) 0 | 0 | 0 | 0 |
| Manganese | ppm ASTM D5185(m) 1 | 0 | 0 | 0 |
| Magnesium | ppm ASTM D5185(m) 0 | <1 | <1 | <1 |
| Calcium | ppm ASTM D5185(m) 135 | 71 | 68 | 70 |
| Phosphorus | ppm ASTM D5185(m) 236 | 314 | 302 | 300 |
| Zinc | ppm ASTM D5185(m) 317 | 359 | 353 | 365 |
| Sulfur | ppm ASTM D5185(m) 561 | 736 | 751 | 714 |
| Lithium | ppm ASTM D5185(m) | <1 | <1 | <1 |

CONTAMINANTS

| method | limit/base | current | history1 | history2 |
|-----------|-----------------------|--------------|----------|----------|
| Silicon | ppm ASTM D5185(m) >15 | 0 | 0 | 0 |
| Sodium | ppm ASTM D5185(m) | <1 | 0 | <1 |
| Potassium | ppm ASTM D5185(m) >20 | <1 | <1 | <1 |

OIL ANALYSIS REPORT



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC0080144
Lab Number : 02640259
Unique Number : 5789421
Test Package : MAR 2 (Additional Tests: KV100, PQ, VI)
Received : 06 Jun 2024
Tested : 07 Jun 2024
Diagnosed : 07 Jun 2024 - Kevin Marson

Suncor - Terra Nova Projects
 Scotia Centre, 235 Water Street
 St. John's, NL
 CA A1C 1B6
 Contact: Josh Hynes
 joshynes@suncor.com
 T: (709)778-3575
 F: (709)724-2835

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.

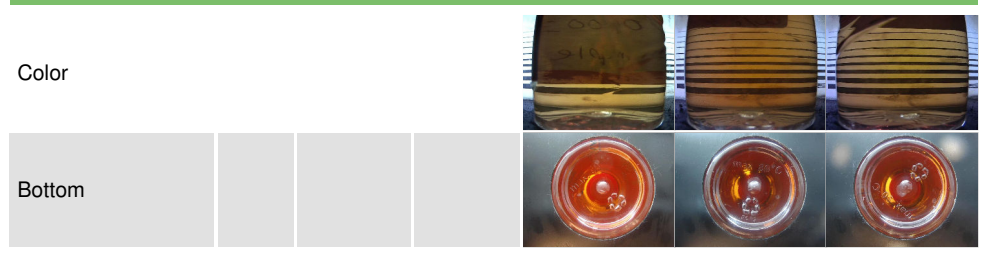
| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|-------------------|--------------|-----------|------------|-----------------|----------|----------|
| Particles >4µm | ASTM D7647 | | | 345 | 432 | 342 |
| Particles >6µm | ASTM D7647 | >1300 | | 98 | 112 | 88 |
| Particles >14µm | ASTM D7647 | >160 | | 5 | 8 | 9 |
| Particles >21µm | ASTM D7647 | >40 | | 1 | 2 | 3 |
| Particles >38µm | ASTM D7647 | >10 | | 0 | 1 | 1 |
| Particles >71µm | ASTM D7647 | >3 | | 0 | 1 | 0 |
| Oil Cleanliness | ISO 4406 (c) | >--/17/14 | | 16/14/10 | 16/14/10 | 16/14/10 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|-------------------|----------|------------|------------|-------------|----------|----------|
| Acid Number (AN) | mg KOH/g | ASTM D974* | 0.40 | 0.36 | 0.35 | 0.36 |

| VISUAL | | method | limit/base | current | history1 | history2 |
|------------------|--------|---------|------------|--------------|----------|----------|
| White Metal | scalar | Visual* | NONE | NONE | 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 | 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* | >0.05 | 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) | 32.25 | 31.2 | 31.3 | 31.3 |
| Visc @ 100°C | cSt | ASTM D7279(m) | 6.3 | 6.0 | 6.0 | 5.9 |
| Viscosity Index (VI) | Scale | ASTM D2270* | 148 | 141 | 140 | 135 |

SAMPLE IMAGES



| Color | history1 | history2 |
|--------|----------|----------|
| | | |
| Bottom | history1 | history2 |
| | | |