



LIEBHERR

OIL ANALYSIS REPORT

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



Machine Id
LIEBHERR R924 038847-1318

Component
Hydraulic System

Fluid
PETRO CANADA HYDREX XV ALL SEASON HYDRAULIC OIL (250 LTR)

RECOMMENDATION

Resample at the next service interval to monitor.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | LH0288048 | LH0260415 | LH0246965 |
| Sample Date | | Client Info | | 19 Apr 2024 | 25 Aug 2023 | 13 Jan 2023 |
| Machine Age | hrs | Client Info | | 11005 | 9529 | 8980 |
| Oil Age | hrs | Client Info | | 0 | 0 | 0 |
| Filter Age | hrs | Client Info | | 0 | 0 | 0 |
| Oil Changed | | Client Info | | Not Changd | Not Changd | Not Changd |
| Filter Changed | | Client Info | | N/A | N/A | N/A |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |

WEAR

All component wear rates are normal.

| | | | | | | |
|--------------|--------|---------------|------|--------------|------|------|
| Iron | ppm | ASTM D5185(m) | >50 | 10 | 16 | 20 |
| Chromium | ppm | ASTM D5185(m) | >15 | 0 | <1 | <1 |
| Nickel | ppm | ASTM D5185(m) | >5 | 0 | 0 | <1 |
| Titanium | ppm | ASTM D5185(m) | | 0 | <1 | <1 |
| Silver | ppm | ASTM D5185(m) | | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185(m) | >8 | <1 | <1 | 1 |
| Lead | ppm | ASTM D5185(m) | >5 | 0 | <1 | 0 |
| Copper | ppm | ASTM D5185(m) | >15 | 2 | 3 | 3 |
| Tin | ppm | ASTM D5185(m) | >5 | 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

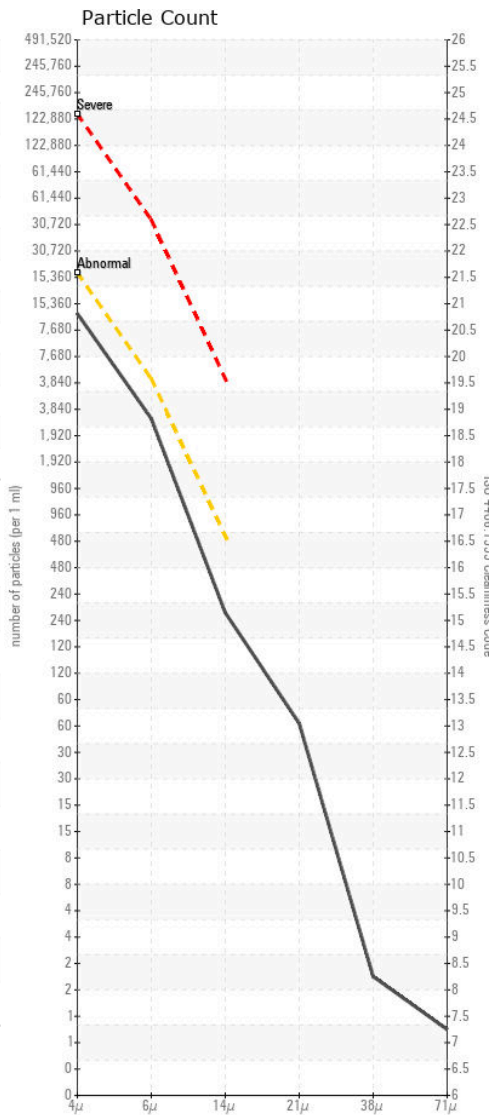
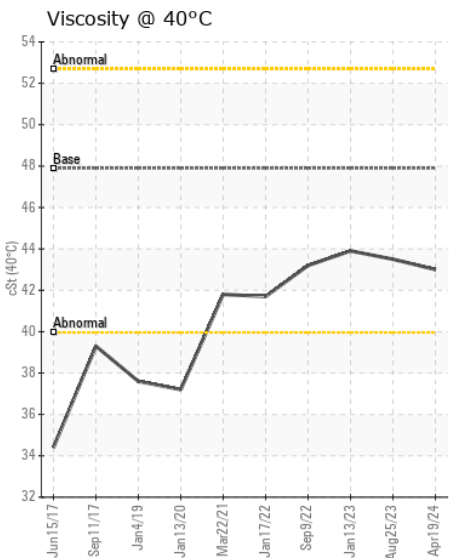
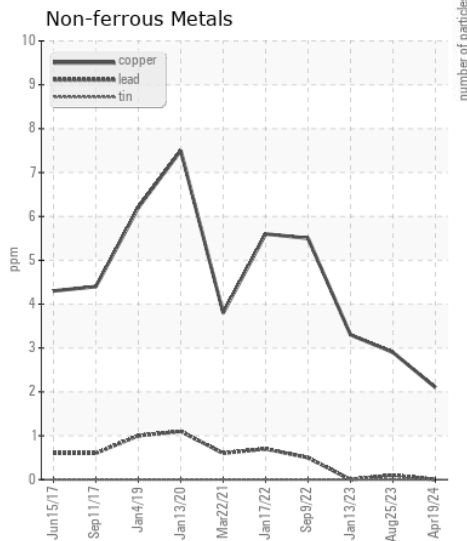
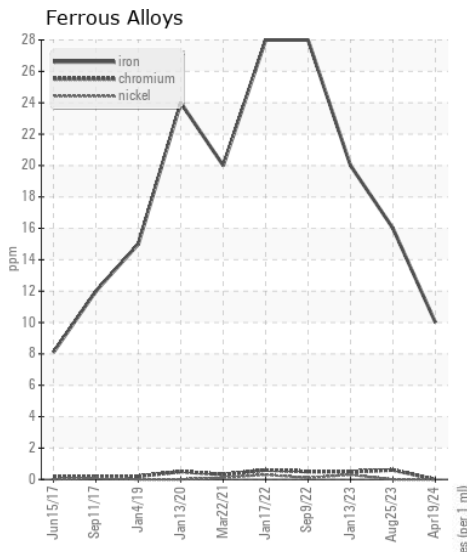
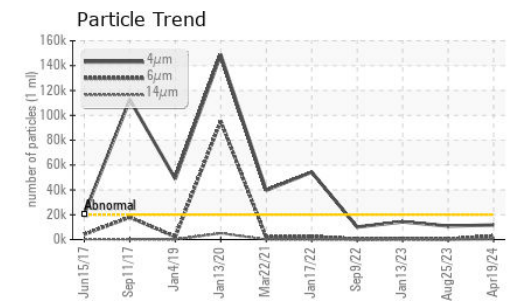
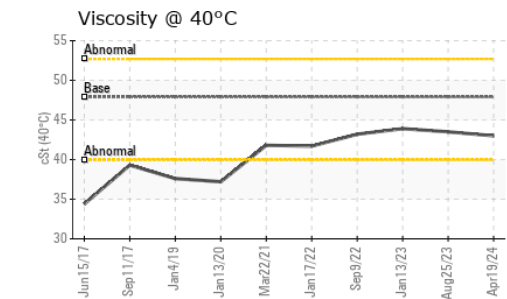
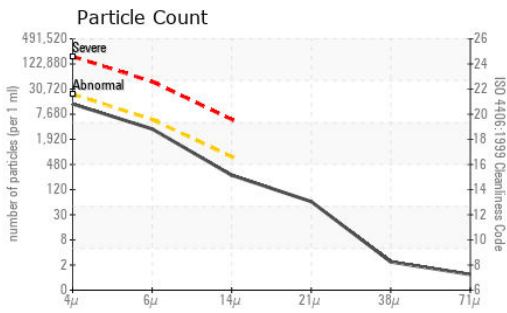
The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable.

| | | | | | | |
|------------------|--------|---------------|-----------|-----------------|----------|----------|
| Silicon | ppm | ASTM D5185(m) | >25 | <1 | 3 | 3 |
| Potassium | ppm | ASTM D5185(m) | >20 | <1 | <1 | <1 |
| Water | | WC Method | >0.1 | NEG | NEG | NEG |
| Particles >4µm | | ASTM D7647 | >20000 | 11726 | 10881 | 14273 |
| Particles >6µm | | ASTM D7647 | >5000 | 2970 | 358 | 770 |
| Particles >14µm | | ASTM D7647 | >640 | 234 | 20 | 53 |
| Particles >21µm | | ASTM D7647 | >160 | 55 | 7 | 14 |
| Particles >38µm | | ASTM D7647 | >40 | 2 | 1 | 1 |
| Particles >71µm | | ASTM D7647 | >10 | 1 | 1 | 1 |
| Oil Cleanliness | | ISO 4406 (c) | >21/19/16 | 21/19/15 | 21/16/11 | 21/17/13 |
| 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 condition of the oil is acceptable for the time in service.

| | | | | | | |
|-------------|-----|---------------|------|--------------|------|------|
| Sodium | ppm | ASTM D5185(m) | | <1 | 1 | 1 |
| 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) | 1 | 0 | <1 | <1 |
| Magnesium | ppm | ASTM D5185(m) | 0 | 1 | 1 | 1 |
| Calcium | ppm | ASTM D5185(m) | 100 | 100 | 113 | 137 |
| Phosphorus | ppm | ASTM D5185(m) | 670 | 637 | 693 | 707 |
| Zinc | ppm | ASTM D5185(m) | 850 | 822 | 860 | 848 |
| Sulfur | ppm | ASTM D5185(m) | 1600 | 1507 | 1585 | 1633 |
| Visc @ 40°C | cSt | ASTM D7279(m) | 47.9 | 43.0 | 43.5 | 43.9 |



ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : LH0288048
Lab Number : 02632804
Unique Number : 5773957
Test Package : MOB 1 (Additional Tests: PrtCount)

Received : 02 May 2024
Tested : 03 May 2024
Diagnosed : 03 May 2024 - Wes Davis

ECOWASTE INDUSTRIES
 4 SPRUCE ST
 NEW WESTMINSTER, BC
 CA V3L 5G6
 Contact: Service Manager

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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F: