



LIEBHERR

OIL ANALYSIS REPORT

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



Machine Id
LIEBHERR LH22M 110435-1250

Component
Hydraulic System

Fluid
PETRO CANADA HYDREX XV ALL SEASON HYDRAULIC OIL (300 LTR)

RECOMMENDATION

We recommend you service the filters on this component. We recommend an early resample to monitor this condition.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | LH0288118 | LH0281045 | LH0283999 |
| Sample Date | | Client Info | | 30 May 2024 | 20 Mar 2024 | 31 Jan 2024 |
| Machine Age | hrs | Client Info | | 13142 | 12555 | 12137 |
| 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 | | | | ABNORMAL | ABNORMAL | NORMAL |

WEAR

All component wear rates are normal.

| | | | | | | |
|--------------|--------|---------------|------|--------------|------|------|
| Iron | ppm | ASTM D5185(m) | >60 | 56 | 40 | 31 |
| Chromium | ppm | ASTM D5185(m) | >40 | 8 | 7 | 6 |
| Nickel | ppm | ASTM D5185(m) | >10 | 0 | 0 | 0 |
| Titanium | ppm | ASTM D5185(m) | | 0 | 0 | 0 |
| Silver | ppm | ASTM D5185(m) | | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185(m) | >5 | <1 | <1 | <1 |
| Lead | ppm | ASTM D5185(m) | >5 | 0 | 0 | 0 |
| Copper | ppm | ASTM D5185(m) | >15 | 4 | 3 | 2 |
| 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

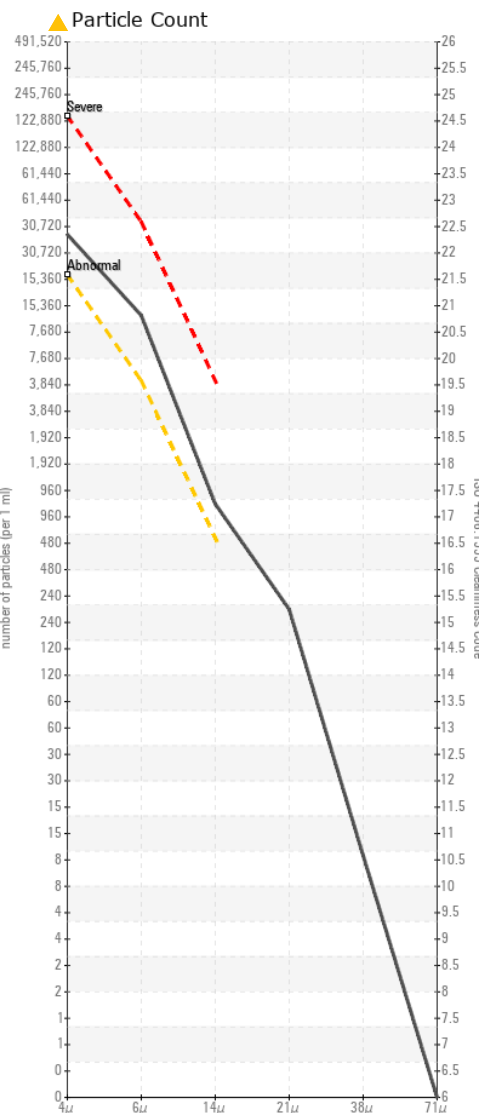
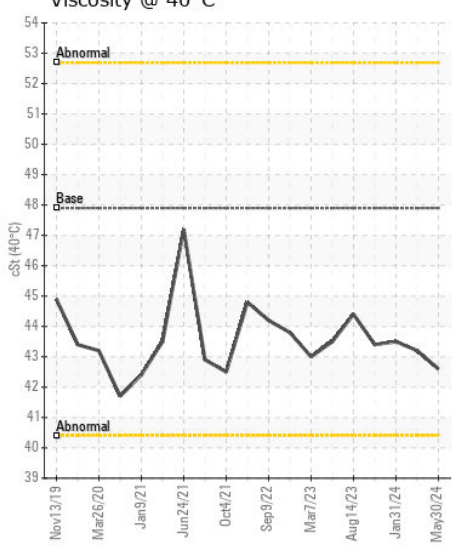
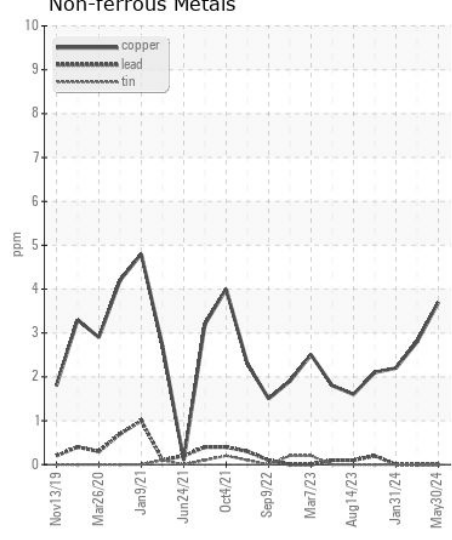
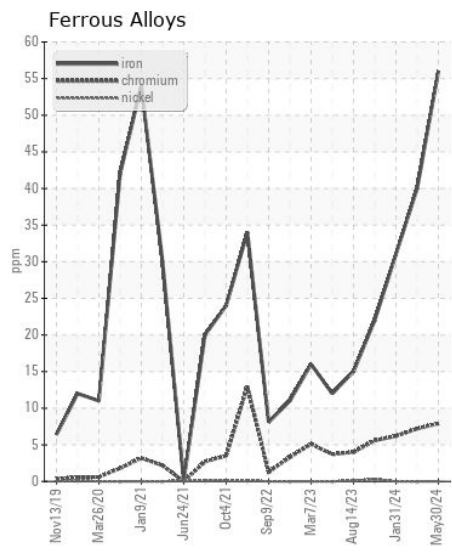
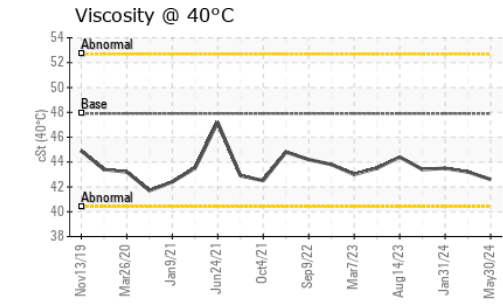
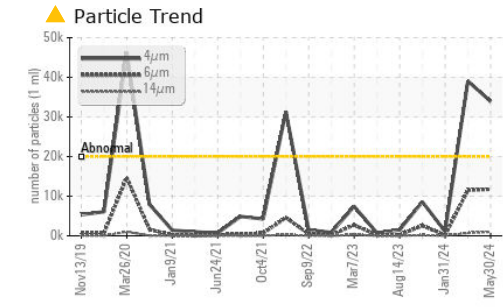
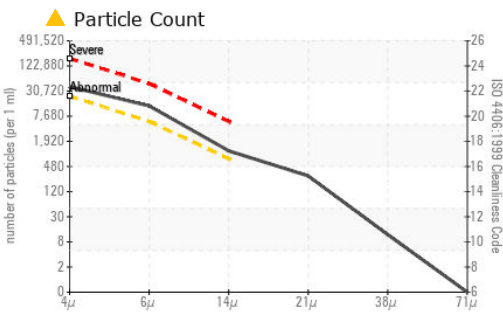
There is a moderate amount of silt (particulates < 14 microns in size) present in the oil.

| | | | | | | |
|------------------|--------|---------------|-----------|-----------------|----------|----------|
| Silicon | ppm | ASTM D5185(m) | >15 | 1 | 2 | 1 |
| Potassium | ppm | ASTM D5185(m) | >20 | 0 | <1 | <1 |
| Water | | WC Method | >0.1 | NEG | NEG | NEG |
| Particles >4µm | | ASTM D7647 | >20000 | 33908 | 39053 | 1111 |
| Particles >6µm | | ASTM D7647 | >5000 | 11746 | 11497 | 168 |
| Particles >14µm | | ASTM D7647 | >640 | 998 | 708 | 7 |
| Particles >21µm | | ASTM D7647 | >160 | 251 | 132 | 2 |
| Particles >38µm | | ASTM D7647 | >40 | 10 | 7 | 1 |
| Particles >71µm | | ASTM D7647 | >10 | 0 | 1 | 1 |
| Oil Cleanliness | | ISO 4406 (c) | >21/19/16 | 22/21/17 | 22/21/17 | 17/15/10 |
| Silt | scalar | Visual* | NONE | NONE | NONE | NONE |
| Debris | scalar | Visual* | NONE | NONE | VLITE | NONE |
| Sand/Dirt | scalar | Visual* | NONE | VLITE | NONE | NONE |
| Appearance | scalar | Visual* | NORML | NORML | NORML | NORML |
| Odor | scalar | Visual* | NORML | NORML | NORML | NORML |
| Emulsified Water | scalar | Visual* | >0.1 | NEG | NEG | .2% |

FLUID CONDITION

The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

| | | | | | | |
|-------------|-----|---------------|------|--------------|------|------|
| Sodium | ppm | ASTM D5185(m) | | <1 | <1 | <1 |
| Boron | ppm | ASTM D5185(m) | 0 | <1 | 0 | 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 | <1 | 0 | 0 |
| Magnesium | ppm | ASTM D5185(m) | 0 | <1 | <1 | <1 |
| Calcium | ppm | ASTM D5185(m) | 100 | 109 | 103 | 105 |
| Phosphorus | ppm | ASTM D5185(m) | 670 | 635 | 641 | 652 |
| Zinc | ppm | ASTM D5185(m) | 850 | 835 | 840 | 829 |
| Sulfur | ppm | ASTM D5185(m) | 1600 | 1504 | 1483 | 1616 |
| Visc @ 40°C | cSt | ASTM D7279(m) | 47.9 | 42.6 | 43.2 | 43.5 |



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : LH0288118 **Received** : 12 Jun 2024
Lab Number : 02641438 **Tested** : 13 Jun 2024
Unique Number : 5798977 **Diagnosed** : 13 Jun 2024 - Wes Davis
Test Package : MOB 1 (Additional Tests: PrtCount)

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: