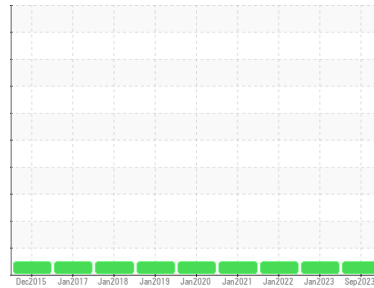




OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Machine Id
PERKINS 1629 - LAKESHORE WEST PUMP STN #2

Component
Diesel Engine

Fluid
ESSO XD-3 EXTRA 15W40 CJ-4 (10 LTR)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

Metal levels are typical for a new component breaking in.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION

| | method | limit/base | current | history1 | history2 |
|---------------|-------------|-------------|--------------------|-------------|-------------|
| Sample Number | Client Info | | WC0860147 | WC0774080 | WC0602810 |
| Sample Date | Client Info | | 19 Sep 2023 | 12 Jan 2023 | 11 Jan 2022 |
| Machine Age | hrs | Client Info | 183 | 628 | 608 |
| Oil Age | hrs | Client Info | 43 | 20 | 0 |
| Oil Changed | Client Info | | Changed | Changed | Changed |
| Sample Status | | | NORMAL | NORMAL | NORMAL |

CONTAMINATION

| | method | limit/base | current | history1 | history2 |
|--------|-----------|------------|----------------|----------|----------|
| Fuel | WC Method | >5 | <1.0 | <1.0 | <1.0 |
| Glycol | WC Method | | NEG | NEG | NEG |

WEAR METALS

| | method | limit/base | current | history1 | history2 | |
|-----------|--------|---------------|---------|--------------|----------|----|
| Iron | ppm | ASTM D5185(m) | >250 | 3 | 1 | 1 |
| Chromium | ppm | ASTM D5185(m) | >10 | 0 | 0 | 0 |
| Nickel | ppm | ASTM D5185(m) | >5 | 0 | 0 | 0 |
| Titanium | ppm | ASTM D5185(m) | | 0 | 0 | 0 |
| Silver | ppm | ASTM D5185(m) | >3 | <1 | 0 | <1 |
| Aluminum | ppm | ASTM D5185(m) | >35 | 1 | 3 | 2 |
| Lead | ppm | ASTM D5185(m) | >100 | <1 | 0 | <1 |
| Copper | ppm | ASTM D5185(m) | >60 | <1 | <1 | <1 |
| Tin | ppm | ASTM D5185(m) | >5 | 0 | 0 | 0 |
| Antimony | ppm | ASTM D5185(m) | | 0 | <1 | 0 |
| Vanadium | ppm | ASTM D5185(m) | | 0 | 0 | <1 |
| 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) | | 75 | 72 | 72 |
| Barium | ppm | ASTM D5185(m) | | <1 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185(m) | | 86 | 83 | 82 |
| Manganese | ppm | ASTM D5185(m) | | 0 | 0 | 0 |
| Magnesium | ppm | ASTM D5185(m) | | 42 | 18 | 19 |
| Calcium | ppm | ASTM D5185(m) | 2360 | 2082 | 2175 | 2064 |
| Phosphorus | ppm | ASTM D5185(m) | 1110 | 959 | 1041 | 1070 |
| Zinc | ppm | ASTM D5185(m) | 1220 | 1092 | 1111 | 1151 |
| Sulfur | ppm | ASTM D5185(m) | | 3047 | 3188 | 3342 |
| Lithium | ppm | ASTM D5185(m) | | <1 | <1 | <1 |

CONTAMINANTS

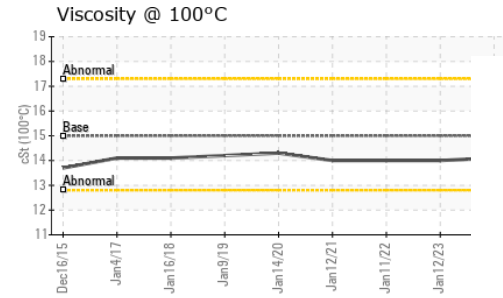
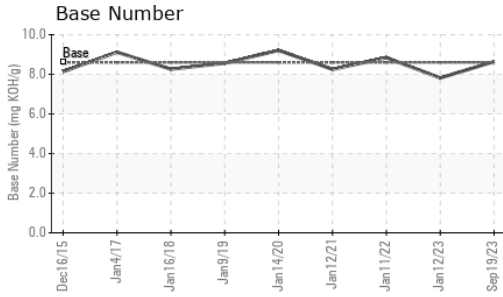
| | method | limit/base | current | history1 | history2 | |
|-----------|--------|---------------|---------|----------|----------|---|
| Silicon | ppm | ASTM D5185(m) | >35 | 4 | 4 | 3 |
| Sodium | ppm | ASTM D5185(m) | >118 | 2 | 2 | 4 |
| Potassium | ppm | ASTM D5185(m) | >20 | 0 | <1 | 1 |

INFRA-RED

| | method | limit/base | current | history1 | history2 | |
|-----------|----------|-------------|---------|-------------|----------|------|
| Soot % | % | ASTM D7844* | >3 | 0 | 0 | 0 |
| Nitration | Abs/cm | ASTM D7624* | >20 | 7.6 | 7.5 | 3.9 |
| Sulfation | Abs./1mm | ASTM D7415* | >30 | 17.1 | 17.5 | 12.5 |



OIL ANALYSIS REPORT

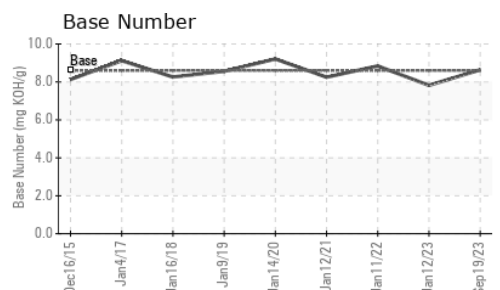
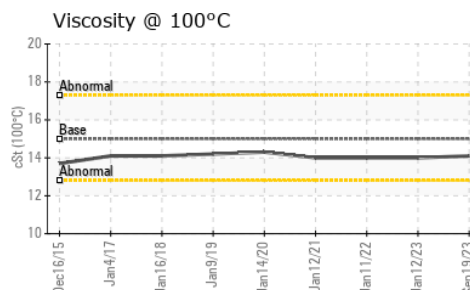
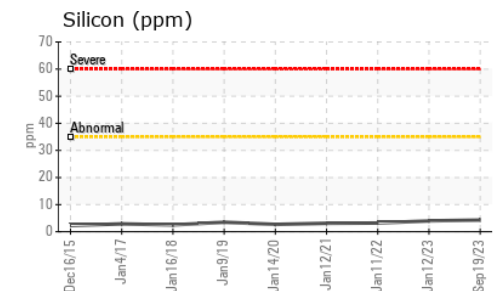
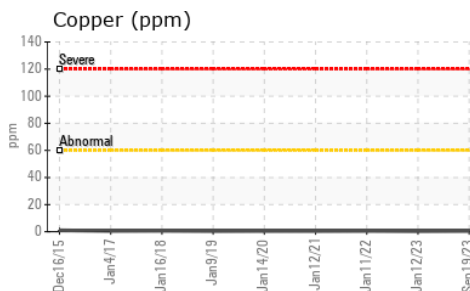
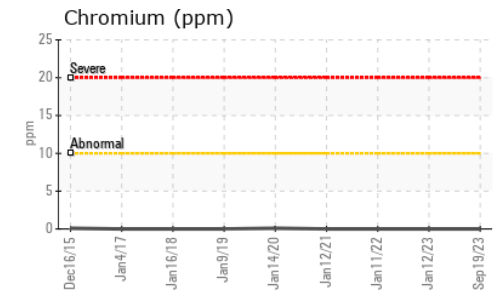
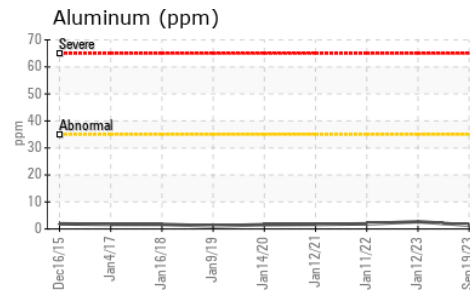
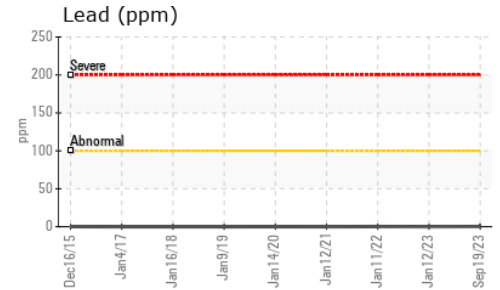
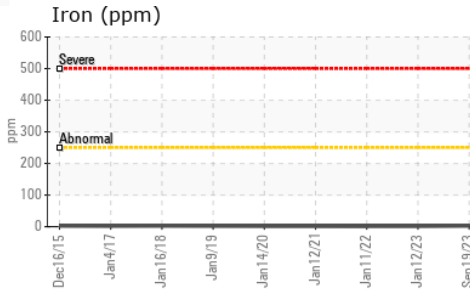


| FLUID DEGRADATION | method | limit/base | current | history1 | history2 | |
|-------------------|----------|-------------|---------|-------------|----------|------|
| Oxidation | Abs/.1mm | ASTM D7414* | >25 | 13.0 | 12.8 | 6.3 |
| Base Number (BN) | mg KOH/g | ASTM D2896* | 8.6 | 8.64 | 7.82 | 8.84 |

| VISUAL | method | limit/base | current | history1 | history2 | |
|------------------|--------|------------|---------|------------|----------|-----|
| Emulsified Water | scalar | Visual* | >0.2 | NEG | NEG | NEG |
| Free Water | scalar | Visual* | | NEG | NEG | NEG |

| FLUID PROPERTIES | method | limit/base | current | history1 | history2 | |
|------------------|--------|---------------|---------|-------------|----------|------|
| Visc @ 100°C | cSt | ASTM D7279(m) | 15 | 14.1 | 14.0 | 14.0 |

GRAPHS



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0860147 **Received** : 30 Oct 2023
Lab Number : **02592550** **Diagnosed** : 30 Oct 2023
Unique Number : 5669629 **Diagnostician** : Wes Davis
Test Package : MOB 2

Lighthouse Electric
 6714 6th Conc South
 Amherstburg, ON
 CA N9V 0C8
 Contact: Brad Purdie
 brad_lighthouse@hotmail.com
 T: (519)730-1310
 F:

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.