



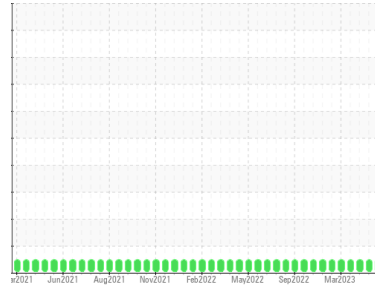
OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Machine Id
Grand River CAT 3 GRRM03BE
 Component
Biogas Engine
 Fluid
CHEVRON HDAX 9500 GAS ENGINE OIL 40 (90 GAL)



DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

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 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 | | WC0724874 | WC0724846 | WC0724840 |
| Sample Date | Client Info | | 30 Jan 2024 | 10 Aug 2023 | 06 Jun 2023 |
| Machine Age | hrs | Client Info | 62932 | 62509 | 62289 |
| Oil Age | hrs | Client Info | 614 | 197 | 1395 |
| Oil Changed | Client Info | | Not Chngd | Not Chngd | Changed |
| Sample Status | | | NORMAL | NORMAL | NORMAL |

CONTAMINATION

| | method | limit/base | current | history1 | history2 |
|--------|-----------|------------|----------------|----------|----------|
| Fuel | WC Method | >4.0 | <1.0 | <1.0 | <1.0 |
| Water | WC Method | >0.1 | NEG | NEG | NEG |
| Glycol | WC Method | | NEG | NEG | NEG |

WEAR METALS

| | method | limit/base | current | history1 | history2 |
|----------|--------|-----------------|--------------|----------|----------|
| Iron | ppm | ASTM D5185m >15 | 0 | 1 | 2 |
| Chromium | ppm | ASTM D5185m >4 | 0 | 0 | 0 |
| Nickel | ppm | ASTM D5185m >2 | 0 | 0 | <1 |
| Titanium | ppm | ASTM D5185m | 0 | 0 | 0 |
| Silver | ppm | ASTM D5185m >5 | 0 | 0 | <1 |
| Aluminum | ppm | ASTM D5185m >6 | <1 | 0 | 0 |
| Lead | ppm | ASTM D5185m >9 | <1 | 0 | <1 |
| Copper | ppm | ASTM D5185m >14 | <1 | 1 | 1 |
| Tin | ppm | ASTM D5185m >4 | <1 | <1 | 1 |
| Vanadium | ppm | ASTM D5185m | 0 | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | 0 | 0 | 0 |

ADDITIVES

| | method | limit/base | current | history1 | history2 |
|------------|--------|-------------|--------------|----------|----------|
| Boron | ppm | ASTM D5185m | 0 | 0 | <1 |
| Barium | ppm | ASTM D5185m | <1 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | <1 | 0 | 3 |
| Manganese | ppm | ASTM D5185m | <1 | <1 | 0 |
| Magnesium | ppm | ASTM D5185m | 12 | 8 | 11 |
| Calcium | ppm | ASTM D5185m | 1627 | 1766 | 1687 |
| Phosphorus | ppm | ASTM D5185m | 260 | 272 | 284 |
| Zinc | ppm | ASTM D5185m | 324 | 325 | 370 |
| Sulfur | ppm | ASTM D5185m | 1659 | 2148 | 2785 |

CONTAMINANTS

| | method | limit/base | current | history1 | history2 |
|-----------|--------|------------------|-----------|----------|----------|
| Silicon | ppm | ASTM D5185m >181 | 28 | 14 | 53 |
| Sodium | ppm | ASTM D5185m | 0 | <1 | 0 |
| Potassium | ppm | ASTM D5185m >20 | 0 | 0 | 2 |

INFRA-RED

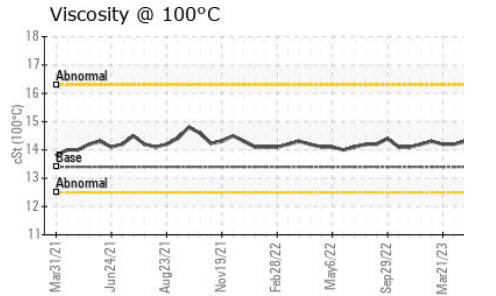
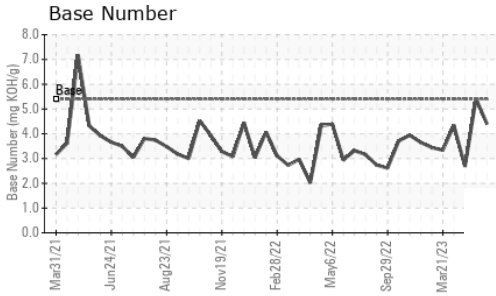
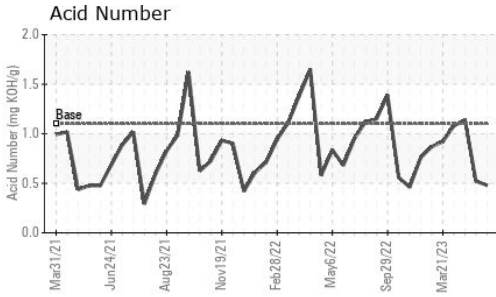
| | method | limit/base | current | history1 | history2 |
|-----------|----------|-----------------|-------------|----------|----------|
| Soot % | % | *ASTM D7844 | 0 | 0 | 0 |
| Nitration | Abs/cm | *ASTM D7624 >20 | 6.1 | 5.4 | 5.5 |
| Sulfation | Abs/.1mm | *ASTM D7415 >30 | 16.5 | 14.8 | 19.7 |

FLUID DEGRADATION

| | method | limit/base | current | history1 | history2 |
|------------------|----------|-----------------|-------------|----------|----------|
| Oxidation | Abs/.1mm | *ASTM D7414 >25 | 10.4 | 8.5 | 12.5 |
| Acid Number (AN) | mg KOH/g | ASTM D8045 1.1 | 0.48 | 0.52 | 1.14 |
| Base Number (BN) | mg KOH/g | ASTM D2896 5.4 | 4.39 | 5.41 | 2.68 |



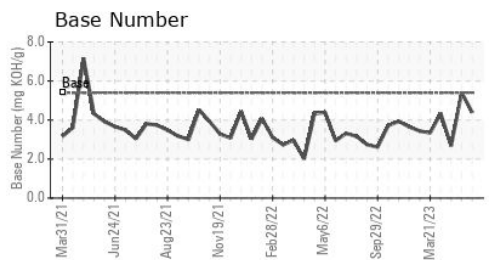
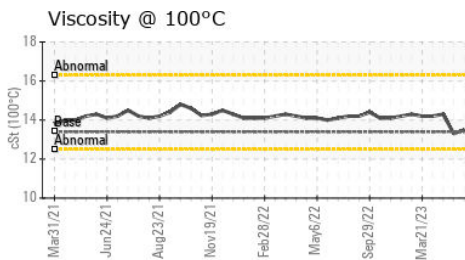
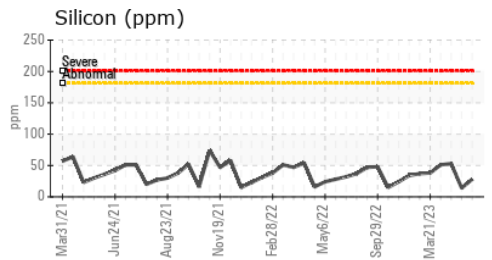
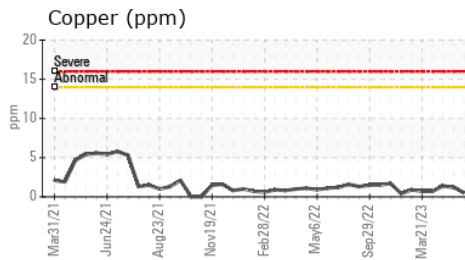
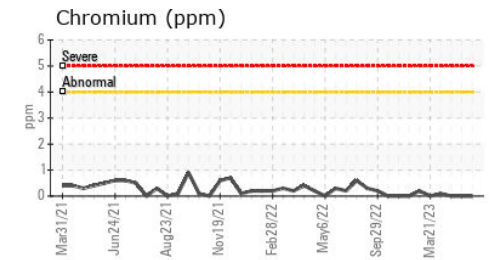
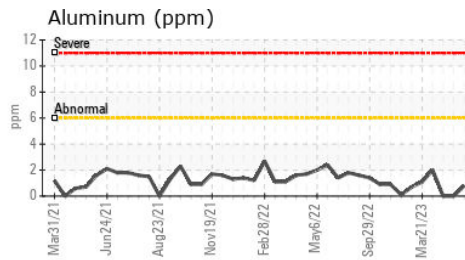
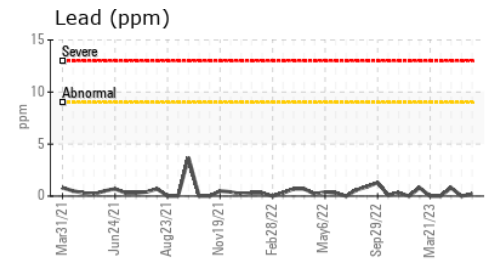
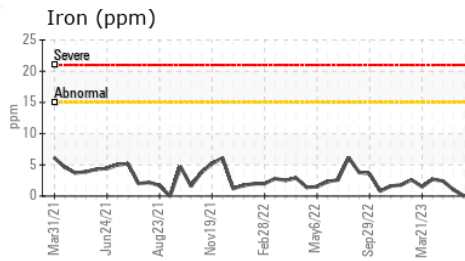
OIL ANALYSIS REPORT



| VISUAL | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|---------|----------|----------|
| White Metal | scalar | *Visual | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | NONE | NONE |
| Silt | scalar | *Visual | NONE | NONE | NONE |
| Debris | scalar | *Visual | NONE | NONE | NONE |
| Sand/Dirt | scalar | *Visual | NONE | NONE | NONE |
| Appearance | scalar | *Visual | NORML | NORML | NORML |
| Odor | scalar | *Visual | NORML | NORML | NORML |
| Emulsified Water | scalar | *Visual | >0.1 | NEG | NEG |
| Free Water | scalar | *Visual | | NEG | NEG |

| FLUID PROPERTIES | method | limit/base | current | history1 | history2 | |
|------------------|--------|------------|---------|-------------|----------|------|
| Visc @ 100°C | cSt | ASTM D445 | 13.4 | 13.5 | 13.3 | 14.3 |

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
 Sample No. : WC0724874
 Lab Number : 06077049
 Unique Number : 10859140
 Test Package : MOB 2

Received : 01 Feb 2024
 Diagnosed : 02 Feb 2024
 Diagnostician : Sean Felton

EDL NA Recips-Grand River
 Grand River Powerstation, 8550 West Grand River Hwy
 Grand Ledge, MI
 US 48837
 Contact: JAMES ALEXANDER
 james.alexander@edlenergy.com

To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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F: